

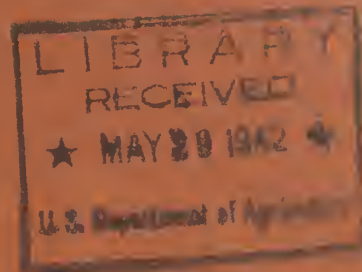
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VOLUME NO. 1

EXPLANATORY NOTES  
FOR  
DEPARTMENT OF AGRICULTURE  
BUDGET ESTIMATES  
FISCAL YEAR  
1943



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UNITED STATES  
DEPARTMENT OF AGRICULTURE  
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C O N T E N T S

(Volume 1)

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1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthal and Whistler (1973). The total chlorophyll content was determined by the method of Arar and Cook (1977). The carotenoid content was determined by the method of Lichtenthal and Whistler (1973). The total carotenoid content was determined by the method of Arar and Cook (1977). The total protein content was determined by the method of Lowry et al. (1951). The total lipid content was determined by the method of Bligh and Dyer (1959). The total carbohydrate content was determined by the method of Dubois and Gilles (1950). The total nucleic acid content was determined by the method of Burton (1956). The total ash content was determined by the method of AOAC (1970). The total moisture content was determined by the method of AOAC (1970). The total dry matter content was determined by the method of AOAC (1970). The total organic acid content was determined by the method of AOAC (1970). The total alkaloid content was determined by the method of AOAC (1970). The total saponin content was determined by the method of AOAC (1970). The total tannin content was determined by the method of AOAC (1970). The total flavonoid content was determined by the method of AOAC (1970). The total phenol content was determined by the method of AOAC (1970). The total terpenoid content was determined by the method of AOAC (1970). The total steroid content was determined by the method of AOAC (1970). The total glycoside content was determined by the method of AOAC (1970). The total alkaloid content was determined by the method of AOAC (1970). The total saponin content was determined by the method of AOAC (1970). The total tannin content was determined by the method of AOAC (1970). The total flavonoid content was determined by the method of AOAC (1970). The total phenol content was determined by the method of AOAC (1970). The total terpenoid content was determined by the method of AOAC (1970). The total steroid content was determined by the method of AOAC (1970). The total glycoside content was determined by the method of AOAC (1970).

[illegible]

1. The first group of people who are not in the labor force are those who are not in the labor force because they are not in the labor force.

[illegible][illegible]

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United States Department of Agriculture  
Budget Estimates, 1943, Compared with Appropriations, 1942

Note: Figures in brackets [ ] not included in totals.

| Item   | Appropriations,<br>1942 | Budget<br>Estimates,<br>1943 | Increase or de-<br>crease, Budget<br>Est., 1943<br>compared with<br>Apprs., 1942 |
|--|-------------------------|------------------------------|--|
| Group I, Action Programs:  |                         |                              |  |
| Agricultural conservation<br>program (AAA) .....                           | \$499,388,671           | \$450,000,000                | - \$49,388,671   |
| Parity payments (AAA):   |                         |                              |  |
| Direct appropriation .....   | 212,000,000             | a/                           | a/-212,000,000   |
| Reappropriation .....  | - -                     | 2,015,516                    | + 2,015,516  |
| Sugar Act .....  | 47,962,910              | 47,962,910                   | - -  |
| Disposal of surplus commodities:   |                         |                              |  |
| Permanent appropriation  |                         |                              |  |
| Section 32 .....   | 97,729,589              | 132,000,000                  | + 34,270,411   |
| Supplemental appropriation ..  | 125,150,000             | - -                          | -125,150,000   |
| Federal Crop Insurance Act:  |                         |                              |  |
| Administrative and operat-<br>ing expenses .....                           | 8,559,827               | 9,263,127                    | + 703,300  |
| Farm Tenant Act:   |                         |                              |  |
| Farm tenancy (loans, Title I):   |                         |                              |  |
| Salaries and expenses:   |                         |                              |  |
| Direct appropriation .....   | 2,488,912               | 2,500,264                    | + 11,352   |
| Reappropriation .....  | 392,350                 | - -                          | - 392,350  |
| Loans (R.F.C. Funds) .....   | [50,000,000]            | [40,000,000]                 | [- 10,000,000]   |
| Liquidation and management of<br>resettlement projects<br>(Title IV) ..... | 747,453                 | 500,000                      | - 247,453  |
| Land utilization program<br>(Title III):                                   |                         |                              |  |
| Direct appropriation .....   | 2,752,412               | 795,575                      | - 1,956,837  |
| Reappropriation .....  | 701,743                 | - -                          | - 701,743  |
| Payment to counties from<br>submarginal land program.                      | 53,700                  | 56,000                       | + 2,300  |
| Loans, grants, and rural reha-<br>bilitation:                              |                         |                              |  |
| Direct appropriation .....   | 64,000,000              | 50,319,557                   | - 13,680,443   |
| Reappropriation .....  | 6,500,000               | 5,000,000                    | - 1,500,000  |
| R.F.C. funds for loans ....  | [120,000,000]           | [75,000,000]                 | [- 45,000,000]   |



| Item  | Appropriations,<br>1942 | Budget<br>Estimates,<br>1943 | Increase or de-<br>crease, Budget<br>Est., 1943<br>compared with<br>Apprns., 1942 |
|---|-------------------------|------------------------------|---|
| Rural Electrification Ad-<br>ministration:  |                         |                              |   |
| Administrative Expenses ....  | \$4,262,375             | \$4,013,798                  | - \$248,577   |
| Loans (R.F.C. Funds) .....  | [100,000,000]           | [10,000,000]                 | [- 90,000,000]  |
| Water Facilities Act .....  | 500,000                 | 202,585                      | - 297,415   |
| Cooperative farm forestry .....   | 700,000                 | 700,000                      | - -   |
| Soil erosion control program<br>(SCS) .....   | 25,602,109              | 22,507,204                   | - 3,094,905   |
| Water conservation and utiliza-<br>tion projects (Wheeler-Case -<br>transfer from Interior) ..... | [1,500,000]             | - -                          | [- 1,500,000]   |
| Orchard rehabilitation loans ...  | 1,000,000               | - -                          | - 1,000,000   |
| Commodity Credit Corporation:   |                         |                              |   |
| Admin. expenses from<br>Corporation funds .....   | [3,500,000]             | [3,513,498]                  | [+ 13,498]  |
| Flood Control (Transfer from<br>War Dept.) .....  | [998,342]               | [500,000]                    | [- 498,342]   |
| Farm Credit Administration:   |                         |                              |   |
| Salaries and expenses:  |                         |                              |   |
| Direct appropriation <u>b</u> /.....  | 3,887,900               | 3,168,331                    | - 719,569   |
| Reappropriation .....   | 3,660,000               | 3,699,303                    | + 39,303  |
| Amount chargeable against<br>activities administered<br>by FCA .....                              | [1,569,341]             | [2,439,288]                  | [+ 869,947]   |
| Farmers' crop production and<br>harvesting loans:   |                         |                              |   |
| Reappropriation .....   | 14,205,773              | 5,206,470                    | - 8,999,303   |
| Collections available ....  | [17,700,000]            | [16,000,000]                 | [- 1,700,000]   |
| Fees and assessments, Federal<br>Credit Unions .....  | 158,000                 | 160,000                      | + 2,000   |
| Federal Farm Mortgage Corpora-<br>tion: <u>c</u> /  |                         |                              |   |
| Admin. expenses from Corpora-<br>tion funds .....   | [8,350,000]             | [9,050,000]                  | [+ 700,000]   |
| Total, action programs .  | 1,122,403,724           | 740,070,640                  | - 382,333,084   |







| Item   | Appropriations,<br>1942 | Budget<br>Estimates,<br>1943 | Increase or de-<br>crease, Budget<br>Est., 1943<br>compared with<br>Apprs., 1942 |
|--|-------------------------|------------------------------|--|
| Group II, Other Activities, in-<br>cluding research and extension<br>(and payments to States there-<br>for), pest and disease control,<br>forestry, regulatory, market-<br>ing, and other services, etc: |                         |                              |  |
| Office of the Secretary .....  | d/ \$713,320            | d/ \$716,850                 | e/ + \$3,530   |
| Office of the Solicitor .....  | d/ 232,395              | d/ 213,686                   | g/ - 18,709  |
| Office of Information .....  | d/ 1,897,614            | d/ 1,850,407                 | g/ - 47,207  |
| Library .....  | d/f/ 106,615            | 107,030                      | g/ + 415   |
| Office of Experiment Stations:<br>Payments to States for agri-<br>cultural experiment<br>stations .....  | 6,926,208               | 6,462,500                    | - 463,708  |
| Salaries and expenses .....  | 247,419                 | 256,497                      | + 9,078  |
| Special Research Fund .....  | 1,206,300               | 1,150,000                    | - 56,300   |
| Extension Service:<br>Payments to States for agri-<br>cultural extension work ..   | 18,863,628              | 18,539,660                   | - 323,968  |
| Salaries and expenses .....  | 797,925                 | 766,195                      | - 31,730   |
| Bureau of Agricultural<br>Economics .....  | d/ 886,715              | d/ 1,328,798                 | g/ + 442,083   |
| Office of Foreign Agricultural<br>Relations .....  | 223,841                 | 223,795                      | - 46   |
| Bureau of Animal Industry:<br>Eradicating tuberculosis and<br>Bang's disease:<br>Direct appropriation ...  | 5,614,256               | 4,589,000                    | - 1,025,256  |
| Reappropriation .....  | 750,000                 | 1,450,000                    | + 700,000  |
| Other work of bureau .....   | 8,883,979               | 9,112,718                    | h/ + 228,739   |
| Bureau of Dairy Industry .....   | 738,477                 | 764,757                      | + 26,280   |
| Bureau of Plant Industry .....   | 5,293,881               | 4,939,741                    | - 354,140  |
| Forest Service:<br>Forest-fire cooperation ....  | 2,425,000               | 2,500,000                    | + 75,000   |
| Emergency forest fire<br>control .....   | 1,100,000               | - -                          | - 1,100,000  |
| Acquisition of forest lands  | 1,797,348               | 354,210                      | - 1,443,138  |
| Payments to States, roads<br>and trails for States, and<br>acquisition of land from<br>national-forest receipts .  | 2,483,085               | 2,167,085                    | - 316,000  |
| Other work, including pro-<br>tection and management of<br>national forests, research,<br>etc. ....  | 14,387,482              | 14,446,355                   | + 58,873   |
| Forest roads and trails .....  | 9,990,165               | 6,500,000                    | - 3,490,165  |



| Item   | Appropriations,<br>1942 | Budget<br>Estimates,<br>1943 | Increase or de-<br>crease, Budget<br>Est., 1943<br>compared with<br>Apprns., 1942 |
|--|-------------------------|------------------------------|---|
| Bureau of Agricultural Chem-<br>istry and Engineering ....   | \$907,266               | \$917,484                    | + \$10,218  |
| Regional Research Laborator-<br>ies i/ .....   | [3,500,000]             | [4,000,000]                  | [+ 500,000]   |
| Emergency dehydration in-<br>vestigations j/ .....   | 144,000                 | - -                          | - 144,000   |
| Bureau of Entomology and<br>Plant Quarantine .....   | 5,402,145               | 5,448,380                    | + 46,235  |
| White pine blister rust con-<br>trol .....   | k/ 1,291,560            | n/ 1,974,000                 | n/ + 682,440  |
| Agricultural Marketing<br>Service .....  | o/ 6,845,296            | 7,131,093                    | p/ + 285,797  |
| Bureau of Home Economics ...   | 356,530                 | 368,890                      | + 12,360  |
| Enforcement of Commodity<br>Exchange Act .....   | 632,765                 | 639,587                      | + 6,822   |
| Beltsville Research Center .   | 97,865                  | 105,855                      | + 7,990   |
| Total, other activities .  | 101,243,080             | 95,024,573                   | - 6,218,507   |
| TOTAL, APPROPRIATIONS AND RE-<br>APPROPRIATIONS .....  | 1,223,646,804           | 835,095,213                  | - 388,551,591   |
| <u>Deduct reappropriations in-<br/>cluded in foregoing:</u>  |                         |                              |   |
| Parity payments .....  | - -                     | - 2,015,516                  | - 2,015,516   |
| Farm Tenant Act:   |                         |                              |   |
| Title I (tenancy loans)  | - 392,350               | - -                          | + 392,350   |
| Title III (submarginal<br>land program) .....  | - 701,743               | - -                          | + 701,743   |
| Loans, grants, and rural<br>rehabilitation .....   | - 6,500,000             | - 5,000,000                  | + 1,500,000   |
| Eradicating tuberculosis<br>and Bang's disease<br>(Animal Industry) .....                                  | - 750,000               | - 1,450,000                  | - 700,000   |
| Farm Credit Administration:  |                         |                              |   |
| Salaries and expenses ..   | - 3,660,000             | - 3,699,303                  | - 39,303  |
| Farmers' crop production<br>and harvesting loans .   | - 14,205,773            | - 5,206,470                  | + 8,999,303   |
| Total, deductions,<br>as above .....   | - 26,209,866            | - 17,371,289                 | + 8,838,577   |
| TOTAL, DIRECT APPROPRIATION ..   | 1,197,436,938           | 817,723,924                  | - 379,713,014   |
| LOAN AUTHORIZATIONS FROM RFC,<br>FLOOD CONTROL, ETC. - LISTED<br>ABOVE BUT NOT INCLUDED IN<br>TOTALS ..... | 303,617,683             | 156,502,786                  | - 147,114,897   |



## TRUST FUNDS

| Item   | Appropriations,<br>1942 | Budget<br>Estimates,<br>1943 | Increase or de-<br>crease, Budget<br>Est., 1943<br>compared with<br>Approps., 1942 |
|--|-------------------------|------------------------------|--|
| Forest Service: Cooperative<br>Work .....  | \$1,000,000             | \$1,000,000                  | - -  |
| Agricultural Marketing Service:<br>Farm products inspections ..  | 495,211                 | 510,872                      | + \$15,661   |
| Classification of cotton for<br>Commodity Credit Corporation   | 275,000                 | 275,000                      | - -  |
| Farm Security Administration:<br>Payments in lieu of taxes and<br>for operation and mainten-<br>ance of resettlement pro-<br>jects ..... | 2,300,000               | 2,250,000                    | - 50,000   |
| State Rural Rehabilitation<br>Corporation funds .....  | 2,125,000               | 1,750,000                    | -375,000   |
| Drainage District Assessments<br>on Acquired Lands .....   | 30,350                  | - -                          | - 30,350   |
| Liquidation of Deposits, Re-<br>serve for Maintenance and<br>Repair, Lease and Purchase<br>Agreements .....                              | 18,750                  | 22,500                       | + 3,750  |
| Agricultural Adjustment<br>Administration:<br>Undistributed cotton price<br>adjustment payments .....                                    | 2,000                   | 1,000                        | - 1,000  |
| Indemnity Fund, County As-<br>sociations, Department of<br>Agriculture .....   | 200                     | 15,000                       | + 14,800   |
| Surplus Marketing Administra-<br>tion:<br>Redemption of order stamps .   | 213,300,000             | 162,100,000                  | - 51,200,000   |
| Miscellaneous contributed funds.   | 86,500                  | 99,300                       | + 12,800   |
| Unearned fees and other charges,<br>Section 8a(4), Commodity Ex-<br>change Act .....   | 200                     | 200                          | - -  |
| Return of excess deposits for<br>reproductions of photographs,<br>mosaics, and maps .....  | 2,495                   | 2,495                        | - -  |
| Unclaimed moneys of individuals<br>whose whereabouts are known .   | 500                     | 500                          | - -  |
| Total, trust funds .....   | 219,636,206             | 168,026,867                  | - 51,609,339   |

NOTE: Public Law 371, 77th Congress, approved December 23, 1941, appropriated \$35,000,000 to the Surplus Marketing Administration for emergency supplies for Territories and possessions. This appropriation was made too late for inclusion in the 1943 Budget schedules and is not included in table above.





FOOTNOTES

- a/ The Budget estimates provide for contract authorization to make full parity payments, if needed, in accordance with the formula set forth in the proposed language under this head for the fiscal year 1943.
- b/ Appropriation of \$26,800,000 for 1942 made to Treasury Department for payment to Federal Land Banks on account of reductions in interest rates.
- c/ Appropriation of \$9,600,000 for 1942 made to Treasury Department for payments on account of reductions in interest rates.
- d/ Plus transfers as shown in the 1943 Budget schedules.
- e/ Apparent increase. The Budget Estimates provide a decrease of \$137,891 in working funds available (by direct appropriation and by transfer) to the Office of the Secretary.
- f/ Includes \$4,400 transferred from "Salaries and expenses, Agricultural Marketing Service" in the 1943 Estimates.
- g/ Apparent increase. The Budget Estimates provide a decrease of \$365,996 in working funds available (by direct appropriation and by transfer) to the Bureau of Agricultural Economics.
- h/ Of this amount, \$193,430 is for establishing on a full fiscal year basis meat inspection and other work which became necessary and which was appropriated for on a part year basis in the fiscal year 1942.
- i/ Financed from the appropriation for "Conservation and use of agricultural land resources."
- j/ Appropriated under the head "Office of the Secretary" in the Second Supplemental National Defense Appropriation Act, 1942.
- k/ Includes \$115,000 for transfer to Department of the Interior.
- m/ Includes \$175,000 for transfer to Department of the Interior.
- n/ Includes an increase of \$60,000 for transfer to Department of the Interior.
- o/ Excludes \$4,400 transferred in the 1943 Estimates to "Salaries and expenses, Library"; and includes transfers in 1943 Estimates, as follows: From Treasury Department, \$4,620; and from Navy Department, \$8,250.
- p/ Of this amount, \$250,000 is for establishing on a full fiscal year basis the project "Farm labor statistics" which was appropriated for on a part year basis in the fiscal year 1942.
- q/ The Budget estimates provide for decreases in working funds available (by direct appropriation and by transfer), as follows: Office of the Solicitor, \$315,609; Office of Information, \$197,212; and Library, \$2,385.





United States Department of Agriculture  
 Subappropriation Table of Budget Estimates, 1943, Compared with Appropriations, 1942  
 Note: Figures in brackets [ ] not included in totals

| Bureau and Item  | Appropriation<br>1942 | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|--|-----------------------|--------------------------|-------------------------------|
| <b>OFFICE OF THE SECRETARY:</b>  |                       |                          |                               |
| Salaries .....   | \$613,979             | \$618,509                | + \$4,530                     |
| Miscellaneous expenses .....   | 99,341                | 98,341                   | - 1,000                       |
| Total .....  | <u>a/</u> 713,320     | <u>a/</u> 716,850        | <u>b/+</u> 3,530              |
| <b>OFFICE OF THE SOLICITOR .....</b>                                     | <u>a/</u> 232,395     | <u>a/</u> 213,686        | <u>d/-</u> 18,709             |
| <b>OFFICE OF INFORMATION:</b>  |                       |                          |                               |
| Salaries and expenses .....  | <u>a/</u> 347,503     | <u>a/</u> 350,407        | + 2,904                       |
| Printing and binding .....   | 1,550,111             | 1,500,000                | - 50,111                      |
| Total .....  | <u>a/</u> 1,897,614   | <u>a/</u> 1,850,407      | <u>d/-</u> 47,207             |
| <b>LIBRARY .....</b>   | <u>a/c/</u> 106,615   | <u>a/</u> 107,030        | <u>d/+</u> 415                |
| <b>OFFICE OF EXPERIMENT STATIONS:</b>                                    |                       |                          |                               |
| Payments to States:  |                       |                          |                               |
| Hatch Act .....  | 720,000               | 720,000                  | - -                           |
| Adams Act .....  | 720,000               | 720,000                  | - -                           |
| Purnell Act .....  | 2,880,000             | 2,880,000                | - -                           |
| Hawaii .....   | 67,500                | 67,500                   | - -                           |
| Alaska .....   | 25,000                | 25,000                   | - -                           |
| Puerto Rico .....  | 50,000                | 50,000                   | - -                           |
| Title I, Bankhead-Jones Act .....  | 2,463,708             | 2,000,000                | - 463,708                     |
| Total, payments to States .....  | 6,926,208             | 6,462,500                | - 463,708                     |
| Salaries and expenses:   |                       |                          |                               |
| Administration of grants to States<br>and coordination of research ..... | 163,937               | 165,905                  | + 1,968                       |
| Insular experiment stations .....  | 83,482                | 90,592                   | + 7,110                       |
| Total, salaries and expenses ..  | 247,419               | 256,497                  | + 9,078                       |
| Total .....  | 7,173,627             | 6,718,997                | - 454,630                     |
| <b>SPECIAL RESEARCH FUND .....</b>                                       | 1,206,300             | 1,150,000                | - 56,300                      |

a/ Plus transfers as shown in the 1943 Budget schedules.

b/ Apparent increase. The Budget estimates provide a decrease of \$137,891 in working funds available (by direct appropriation and by transfer) to the Office of the Secretary.

c/ Includes \$4,400 transferred for cotton library from "U. S. Cotton Futures and U. S. Cotton Standards Acts, Agricultural Marketing Service" in the 1943 Budget estimates.

d/ The Budget estimates provide for decreases in working funds available (by direct appropriation and by transfer), as follows: Office of the Solicitor, \$315,609; Office of Information, \$197,212; and Library, \$2,385.



| Bureau and Item   | Appropriation<br>1942 | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|---|-----------------------|--------------------------|-------------------------------|
| <b>EXTENSION SERVICE:</b>                                 |                       |                          |                               |
| Payments to States:                                       |                       |                          |                               |
| Copper-Ketcham extension work .....                       | \$1,480,000           | \$1,480,000              | - -                           |
| Extension work, Act of April 24, 1939 .....               | 555,000               | 203,000                  | - \$352,000                   |
| Extension work, Section 21, Bankhead-Jones Act .....      | 12,000,000            | 12,000,000               | - -                           |
| Alaska .....  | 23,918                | 23,950                   | +32                           |
| Puerto Rico .....   | 100,000               | 128,000                  | + 28,000                      |
| Cooperative agricultural extension work (permanent) ..... | 4,704,710             | 4,704,710                | - -                           |
| Total, payment to States .....                            | 18,863,628            | 18,539,660               | -323,968                      |
| Salaries and expenses:                                    |                       |                          |                               |
| Administration and coordination of extension work .....   | 555,783               | 561,803                  | + 6,020                       |
| Extension information .....                               | 242,142               | 204,392                  | -37,750                       |
| Total, salaries and expenses .....                        | 797,925               | 766,195                  | -31,730                       |
| Total .....   | 19,661,553            | 19,305,855               | -355,698                      |
| BUREAU OF AGRICULTURAL ECONOMICS .....                    | a/ 886,715            | a/1,328,798              | b/+442,083                    |
| OFFICE OF FOREIGN AGRICULTURAL RELATIONS .....            | 223,841               | 223,795                  | -46                           |
| BUREAU OF ANIMAL INDUSTRY:                                |                       |                          |                               |
| General administrative expenses .....                     | 171,320               | 172,000                  | +180                          |
| Animal husbandry .....                                    | 829,608               | 811,000                  | -18,608                       |
| Diseases of animals .....                                 | c/726,498             | 715,000                  | -11,498                       |
| Eradicating tuberculosis and Bang's disease:              |                       |                          |                               |
| Direct appropriation .....                                | 5,614,256             | 4,589,000                | -1,025,256                    |
| Reappropriation .....                                     | 750,000               | 1,450,000                | +700,000                      |
| Eradicating cattle ticks .....                            | 300,629               | 276,000                  | - 24,629                      |
| Hog-cholera control .....                                 | 113,497               | 102,000                  | -11,497                       |
| Inspection and quarantine .....                           | c/635,927             | 666,000                  | d/ +30,073                    |
| Meat inspection .....                                     | e/5,885,073           | 6,147,000                | f/+261,927                    |
| Virus Serum Toxin Act .....                               | 220,927               | 223,718                  | + 2,791                       |
| Total .....   | 15,248,235            | 15,151,718               | - 96,517                      |

a/ Plus transfers as shown in the 1943 Budget schedules.

b/ Apparent increase. The Budget estimates provide a decrease of \$365,996 in working funds available (by direct appropriation and by transfer) to the Bureau of Agricultural Economics.

c/ Includes \$16,500 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.

d/ Includes an increase of \$8,250 to establish on a full fiscal year basis work on Dourine eradication which was appropriated for on a part year basis in 1942.

e/ Includes \$375,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.

f/ Includes an increase of \$185,180 to establish on a full fiscal year basis meat inspection work which was appropriated for on a part year basis in 1942.



| Bureau and Item                                       | Appropriation<br>1942 | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|---|-----------------------|--------------------------|-------------------------------|
| BUREAU OF DAIRY INDUSTRY .....                        | a/\$738,477           | \$764,757                | + \$26,280                    |
| BUREAU OF PLANT INDUSTRY:                             |                       |                          |                               |
| General administrative expenses ..                    | 212,755               | 213,710                  | + 955                         |
| Arlington Farm .....                                  | 50,314                | 51,109                   | + 795                         |
| Cereal crops and diseases .....                       | 580,478               | 558,160                  | - 22,318                      |
| Cotton and other fiber crops and<br>diseases .....    | 446,160               | 430,820                  | - 15,340                      |
| Drug and related plants .....                         | b/ 65,620             | 65,890                   | + 270                         |
| Dry-land agriculture .....                            | 229,943               | 221,560                  | - 8,383                       |
| Forage crops and diseases .....                       | 306,130               | 294,500                  | - 11,630                      |
| Forest pathology .....                                | 256,835               | 243,460                  | - 13,375                      |
| Fruit and vegetable crops and dis-<br>eases .....     | 1,449,227             | 1,368,410                | - 80,817                      |
| Irrigation agriculture .....                          | 141,200               | 142,220                  | + 1,020                       |
| National Arboretum .....                              | 54,662                | 54,892                   | +230                          |
| Plant exploration, introduction, and<br>surveys ..... | 354,597               | 322,210                  | - 32,387                      |
| Soil and fertilizer investigations.                   | 358,191               | 306,470                  | - 51,721                      |
| Soil survey .....                                     | 277,355               | 205,430                  | - 71,925                      |
| Sugar-plant investigations .....                      | 368,970               | 333,950                  | - 35,020                      |
| Tobacco investigations .....                          | 141,444               | 126,950                  | - 14,494                      |
| Total .....   | 5,293,881             | 4,939,741                | -354,140                      |
| FOREST SERVICE:                                       |                       |                          |                               |
| Salaries and expenses:                                |                       |                          |                               |
| General administrative expenses .                     | c/592,892             | 579,000                  | - 13,892                      |
| National forest protection and<br>management .....    | 11,179,457            | 11,283,095               | +103,638                      |
| Water rights .....                                    | 20,000                | 20,000                   | - -                           |
| Fighting forest fires .....                           | 100,000               | 100,000                  | - -                           |
| Private forestry cooperation ....                     | d/113,066             | 114,000                  | +934                          |
| Forest management .....                               | 611,712               | 566,500                  | -45,212                       |
| Range investigations .....                            | 273,103               | 255,500                  | -17,603                       |
| Forest products .....                                 | e/966,313             | 1,016,260                | +49,947                       |
| Forest survey .....                                   | 252,629               | 250,000                  | -2,629                        |
| Forest economics .....                                | 141,490               | 133,000                  | -8,490                        |
| Forest influences .....                               | 136,820               | 129,000                  | -7,820                        |
| Total, salaries and expenses ....                     | 14,387,482            | 14,446,355               | +58,873                       |

- a/ Includes 1942 appropriations of \$75,400 for "General administrative expenses" and \$655,905 for "Dairy Investigations"; consolidated under the head "Salaries and expenses, Bureau of Dairy Industry" in the 1943 Budget estimates.
- b/ Includes \$17,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.
- c/ Excludes \$12,138 transferred to "Private forestry cooperation" in the 1943 Budget estimates.
- d/ Includes \$12,138 transferred from "General administrative expenses" in the 1943 Budget estimates.
- e/ Includes \$175,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.





| Bureau and Item   | Appropriation<br>1942 | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|---|-----------------------|--------------------------|-------------------------------|
| FOREST SERVICE: (Contd.)  |                       |                          |                               |
| Forest fire cooperation .....   | \$2,425,000           | \$2,500,000              | \$+ 75,000                    |
| Emergency forest fire control .....   | <u>a/</u> 1,100,000   | - -                      | -1,100,000                    |
| Acquisition of lands for national<br>forests .....                          | 1,797,348             | 354,210                  | -1,443,138                    |
| Acquisition of lands from forest<br>receipts .....                          | 316,000               | - -                      | - 316,000                     |
| Total, annual appropriations,<br>General Accounts .....                     | 20,025,830            | 17,300,565               | -2,725,265                    |
| Payments to States and territories<br>from the national forest fund ....    | 1,525,306             | 1,525,306                | - -                           |
| Payments to school funds, Arizona and<br>New Mexico, national forests fund. | 23,392                | 23,392                   | - -                           |
| Roads and trails for States, national<br>forests fund .....                 | 618,387               | 618,387                  | - -                           |
| Total .....   | 22,192,915            | 19,467,650               | -2,725,265                    |
| FOREST ROADS AND TRAILS .....   | 9,990,165             | 6,500,000                | -3,490,165                    |
| BUREAU OF AGRICULTURAL CHEMISTRY<br>AND ENGINEERING:                        |                       |                          |                               |
| General administrative expenses ..  | 106,200               | 106,044                  | - 156                         |
| Agricultural chemical investiga-<br>tions .....                             | <u>b/</u> 365,542     | 349,251                  | -16,291                       |
| Agricultural engineering<br>investigations .....                            | 318,919               | 343,733                  | +24,814                       |
| Naval-stores investigations .....   | 116,605               | 118,456                  | + 1,851                       |
| Total .....   | 907,266               | 917,484                  | +10,218                       |
| REGIONAL RESEARCH LABORATORIES <u>c/</u> .....                              | [3,500,000]           | [4,000,000]              | [+500,000]                    |
| EMERGENCY DEHYDRATION INVESTIGATIONS <u>d/</u> .....                        | 144,000               | - -                      | -144,000                      |

a/ Appropriated in the Second Deficiency Appropriation Act, 1941.

b/ Includes \$20,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.

c/ Financed from the appropriation for "Conservation and use of agricultural land resources."

d/ Appropriated under the head "Office of the Secretary" in the Second Supplemental National Defense Appropriation Act, 1942.





| Bureau and Item  | Appropriation:<br>1942 | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|--|------------------------|--------------------------|-------------------------------|
| <b>BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE:</b>            |                        |                          |                               |
| General administrative expenses .....                        | \$167,872:             | \$167,165:               | \$-707                        |
| Fruit insects .....  | 428,320:               | 390,285:                 | -38,035                       |
| Japanese beetle control .....                                | 427,805:               | 432,275:                 | + 4,470                       |
| Sweetpotato weevil control .....                             | 70,825:                | 71,585:                  | +760                          |
| Mexican fruitfly control .....                               | 169,655:               | 163,740:                 | -5,915                        |
| Citrus canker eradication .....                              | 13,585:                | 10,160:                  | -3,425                        |
| Gypsy and brown-tail moth control .....                      | 378,410:               | 457,570:                 | +79,160                       |
| Dutch elm disease eradication .....                          | 353,345:               | 456,475:                 | +103,130                      |
| Phony peach and peach mosaic eradica-<br>tion .....          | 90,870:                | 127,390:                 | +36,520                       |
| Forest insects .....   | 214,665:               | 205,180:                 | - 9,485                       |
| Truck crop and garden insects .....                          | 369,625:               | 337,020:                 | -32,605                       |
| Cereal and forage insects .....                              | 384,360:               | 349,395:                 | -34,965                       |
| European corn borer control .....                            | 10,000:                | - -                      | -10,000                       |
| Barberry eradication .....                                   | 184,135:               | 228,470:                 | +44,335                       |
| Cotton insects .....   | 145,959:               | 123,895:                 | -22,064                       |
| Pink bollworm and <i>Taeniorhiza</i> weevil<br>control ..... | 530,615:               | 483,135:                 | -47,480                       |
| Bee culture .....  | 84,195:                | 82,100:                  | - 2,095                       |
| Insects affecting man and animals .....                      | a/ 187,985:            | 190,105:                 | + 2,120                       |
| Insect-pest survey and identification .....                  | b/ 162,935:            | 159,150:                 | - 3,785                       |
| Foreign parasites .....                                      | 38,480:                | 20,775:                  | -17,705                       |
| Control investigations .....                                 | 73,213:                | 66,585:                  | - 6,628                       |
| Insecticide and fungicide investiga-<br>tions .....          | 131,115:               | 122,915:                 | - 8,200                       |
| Transit inspection .....                                     | 44,719:                | 41,235:                  | - 3,484                       |
| Foreign plant quarantine .....                               | c/ 707,370:            | 731,065:                 | +23,695                       |
| Certification of exports .....                               | 32,087:                | 30,710:                  | - 1,377                       |
| Total .....  | 5,402,145:             | 5,448,380:               | +46,235                       |
| <b>WHITE PINE BLISTER RUST CONTROL:</b>                      |                        |                          |                               |
| Bureau of Entomology and Plant Quar-<br>antine .....         | 490,892:               | 755,000:                 | +264,108                      |
| Forest Service .....   | 685,668:               | 1,044,000:               | +358,332                      |
| Department of the Interior .....                             | 115,000:               | 175,000:                 | + 60,000                      |
| Total .....  | 1,291,560:             | 1,974,000:               | +682,440                      |

a/ Includes \$5,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.

b/ Includes \$6,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.

c/ Includes \$11,500 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.



| Bureau and Item   | Appropriation<br>1942 | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|---|-----------------------|--------------------------|-------------------------------|
| <b>AGRICULTURAL MARKETING SERVICE:</b>                                  |                       |                          |                               |
| General administrative expenses .....                                   | \$168,573             | \$169,300                | +\$727                        |
| Crop and livestock estimates .....                                      | 758,618               | 757,435                  | -1,183                        |
| Farm labor statistics .....   | a/250,000             | 500,000                  | +b/250,000                    |
| Market news service .....   | 1,139,295             | 1,118,655                | -20,640                       |
| Market inspection of farm products ...                                  | 461,090               | 468,837                  | +7,747                        |
| Marketing farm products .....   | 401,680               | 367,450                  | -34,230                       |
| Tobacco Inspection and Tobacco Stocks<br>and Standards Acts .....       | c/665,575             | 671,660                  | +6,085                        |
| Perishable Agricultural Commodities<br>and Produce Agency Acts .....    | 153,525               | 175,585                  | +22,060                       |
| Standard Container Acts .....   | 10,270                | 10,400                   | +130                          |
| Cotton Quality Statistics and Class-<br>ing Acts .....                  | 468,120               | 481,945                  | +13,825                       |
| United States Cotton Futures and<br>United States Cotton Standards Acts | d/487,725             | 477,483                  | -10,242                       |
| United States Grain Standards Act ...                                   | 757,351               | 767,958                  | +10,607                       |
| United States Warehouse Act .....                                       | 453,110               | 481,415                  | +28,305                       |
| Federal Seed Act .....  | 81,490                | 82,890                   | + 1,400                       |
| Packers and Stockyards Act .....  | 383,924               | 397,665                  | +13,741                       |
| Naval Stores Act .....  | 34,700                | 30,700                   | - 4,000                       |
| Enforcement of the Insecticide Act ..                                   | 170,250               | 171,715                  | + 1,465                       |
| Total .....   | 6,845,296             | 7,131,093                | +285,797                      |
| <b>BUREAU OF HOME ECONOMICS .....</b>                                   | e/356,530             | 368,890                  | +12,360                       |
| <b>ENFORCEMENT OF THE COMMODITY<br/>EXCHANGE ACT .....</b>              | 632,765               | 639,587                  | +6,822                        |

- a/ Appropriated in the Second Supplemental National Defense Appropriation Act, 1942.
- b/ To establish this work on a full fiscal year basis; appropriation made on a part year basis in 1942.
- c/ Includes \$131,000 appropriated in the Second Deficiency Appropriation Act, 1941.
- d/ Excludes \$4,400 transferred for cotton library to "Salaries and expenses, Library" in the 1943 Budget estimates.
- e/ Includes 1942 appropriations of \$31,735 for "General administrative expenses" and \$321,310 for "Home economics investigations"; consolidated under the head "Salaries and expenses, Bureau of Home Economics" in the 1943 Budget estimates. Includes \$20,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.



| Bureau and Item   | Appropriation,<br>1942 | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|---|------------------------|--------------------------|-------------------------------|
| <b>SOIL CONSERVATION SERVICE:</b>   |                        |                          |                               |
| General administrative expenses .   | \$510,334              | \$506,315                | -\$4,019                      |
| Soil and moisture conservation and<br>land-use investigations .....                                   | 1,500,000              | 1,414,429                | -85,571                       |
| Soil and moisture conservation and<br>land-use operations, demonstra-<br>tions, and information ..... | 23,516,775             | 20,510,812               | -3,005,963                    |
| Emergency erosion control, Ever-<br>glades region, Florida .....                                      | 75,000                 | 75,648                   | +648                          |
| Total .....   | 25,602,109             | 22,507,204               | -3,094,905                    |
| <b>CONSERVATION AND USE OF AGRICUL-<br/>TURAL LAND RESOURCES .....</b>                                |                        |                          |                               |
|   | 499,388,671            | 450,000,000              | -49,388,671                   |
| <b>PARITY PAYMENTS:</b>   |                        |                          |                               |
| Direct appropriation .....  | 212,000,000            | a/                       | a/-212,000,000                |
| Reappropriation .....   | - -                    | 2,015,516                | +2,015,516                    |
| Total .....   | 212,000,000            | a/2,015,516              | a/-209,984,484                |
| <b>COMMODITY CREDIT CORPORATION:</b>  |                        |                          |                               |
| Administrative expenses from<br>Corporation funds .....   | b/[3,500,000]          | [3,513,498]              | [+13,498]                     |
| <b>DISPOSAL OF SURPLUS COMMODITIES:</b>   |                        |                          |                               |
| Permanent appropriation Section<br>32 .....   | 97,729,589             | 132,000,000              | +34,270,411                   |
| Supplemental appropriation .....  | c/125,150,000          | - -                      | -125,150,000                  |
| Total .....   | 222,879,589            | 132,000,000              | -90,879,589                   |
| <b>SUGAR ACT .....</b>  |                        |                          |                               |
|   | 47,962,910             | 47,962,910               | - -                           |
| <b>FEDERAL CROP INSURANCE ACT:</b>  |                        |                          |                               |
| Administrative and operating<br>expenses .....  | d/8,559,827            | 9,263,127                | +703,300                      |

a/ The Budget estimates provide for contract authorization to make full parity payments, if needed, in accordance with the formula set forth in the proposed language under this head for the fiscal year 1943.

b/ Includes \$2,000,000 authorized by the Second Deficiency Appropriation Act, 1941.

c/ Includes \$25,000,000 appropriated in the Emergency Relief Appropriation Act, 1942.

d/ Includes \$3,000,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.





| Bureau and Item   | Appropriation<br>1942 | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|---|-----------------------|--------------------------|-------------------------------|
| FARM TENANT ACT:  |                       |                          |                               |
| Farm tenancy (loans, Title I):  |                       |                          |                               |
| Salaries and expenses:  |                       |                          |                               |
| Direct appropriation .....  | \$2,488,912           | \$2,500,264              | \$+11,352                     |
| Reappropriation .....   | 392,350               | - -                      | -392,350                      |
| Total, salaries and expenses .  | 2,881,262             | 2,500,264                | -380,998                      |
| Loans (R.F.C. funds) .....  | [50,000,000]          | [40,000,000]             | [-10,000,000]                 |
| Liquidation and management of re-<br>settlement projects (Title IV) ... | 747,453               | 500,000                  | -247,453                      |
| Land utilization and retirement of<br>submarginal land (Title III):     |                       |                          |                               |
| Direct appropriation .....  | 2,752,412             | 795,575                  | -1,956,837                    |
| Reappropriation .....   | 701,743               | - -                      | -701,743                      |
| Total .....   | 3,454,155             | 795,575                  | -2,658,580                    |
| Payments to counties from sub-<br>marginal land program .....           | 53,700                | 56,000                   | +2,300                        |
| LOANS, GRANTS, AND RURAL REHABILI-<br>TATION:                           |                       |                          |                               |
| Direct appropriation .....  | 64,000,000            | 50,319,557               | -13,680,443                   |
| Reappropriation .....   | 6,500,000             | 5,000,000                | - 1,500,000                   |
| Total .....   | 70,500,000            | 55,319,557               | -15,180,443                   |
| R.F.C. funds for loans .....  | [20,000,000]          | [75,000,000]             | [-45,000,000]                 |
| WATER FACILITIES, ARID AND SEMI-ARID<br>AREAS .....                     | 500,000               | 202,585                  | -297,415                      |
| COOPERATIVE FARM FORESTRY .....   | 700,000               | 700,000                  | - -                           |
| WATER CONSERVATION AND UTILIZATION<br>PROJECTS .....                    | [1,500,000]           | - -                      | [-1,500,000]                  |
| ORCHARD REHABILITATION LOANS .....                                      | <u>2</u> /1,000,000   | - -                      | -1,000,000                    |
| RURAL ELECTRIFICATION ADMINISTRATION:                                   |                       |                          |                               |
| Administrative expenses .....   | b/4,262,375           | 4,013,798                | -248,577                      |
| Loans (R.F.C. funds) .....  | [100,000,000]         | [10,000,000]             | [-90,000,000]                 |
| BELTSVILLE RESEARCH CENTER .....  | <u>c</u> /97,865      | 105,855                  | +7,990                        |
| FLOOD CONTROL (TRANSFER FROM WAR DEPT)                                  | [998,342]             | [500,000]                | [-498,342]                    |

a/ Appropriated in the Third Supplemental National Defense Appropriation Act, 1942.

b/ Includes \$300,000 appropriated in the Second Deficiency Appropriation Act, 1941.

c/ Includes \$10,000 appropriated in the Second Supplemental National Defense Appropriation Act, 1942.





| Bureau and Item  | Appropriation<br>1942  | Budget<br>estimate, 1943 | Increase or<br>decrease, 1943 |
|--|------------------------|--------------------------|-------------------------------|
| <b>FARM CREDIT ADMINISTRATION:</b>   |                        |                          |                               |
| Salaries and expenses:   |                        |                          |                               |
| Direct appropriation <u>a/</u> .....                                       | 3,887,900              | 3,168,331                | -719,569                      |
| Reappropriation .....  | 3,660,000              | 3,699,303                | +39,303                       |
| Amount chargeable against activi-<br>ties administered by F.C.A. ....      | [1,569,341]            | [2,439,288]              | [+869,947]                    |
| Farmers' crop production and harvest-<br>ing loans:                        |                        |                          |                               |
| Reappropriation .....  | 14,205,773             | 5,206,470                | -8,999,303                    |
| Collections available .....  | [17,700,000]           | [16,000,000]             | [-1,700,000]                  |
| Fees and assessments, Fed. Credit<br>Unions .....                          | 158,000                | 160,000                  | +2,000                        |
| Total .....  | 21,911,673             | 12,234,104               | -9,677,569                    |
| <b>FEDERAL FARM MORTGAGE CORPORATION <u>b/</u></b>                         | [8,350,000]            | [9,050,000]              | [+700,000]                    |
| <b>TOTAL, APPROPRIATIONS AND<br/>REAPPROPRIATIONS .....</b>                | <b>c/1,223,646,804</b> | <b>d/835,095,213</b>     | <b>-388,551,591</b>           |
| <b>DEDUCT REAPPROPRIATIONS INCLUDED IN<br/>FOREGOING:</b>                  |                        |                          |                               |
| Parity Payments .....  | - -                    | -2,015,516               | -2,015,516                    |
| Farm Tenant Act:   |                        |                          |                               |
| Title I (tenancy loans) .....  | -392,350               | - -                      | +392,350                      |
| Title III (submarginal land pro-<br>gram) .....                            | -701,743               | - -                      | +701,743                      |
| Loans, grants, and rural rehabili-<br>tation .....                         | -6,500,000             | -5,000,000               | +1,500,000                    |
| Eradicating tuberculosis and Bang's<br>disease (Animal Industry) .....     | -750,000               | 1,450,000                | -700,000                      |
| Farm Credit Administration:  |                        |                          |                               |
| Salaries and expenses ....   | -3,660,000             | -3,699,303               | -39,303                       |
| Crop production and harvesting<br>loans .....                              | -14,205,773            | -5,206,470               | +8,999,303                    |
| Total, deductions, as above  | -26,209,866            | -17,371,289              | +8,838,577                    |
| <b>TOTAL, DIRECT APPROPRIATIONS (exclus-<br/>ive of trust funds) .....</b> | <b>c/1,197,436,938</b> | <b>d/817,723,924</b>     | <b>-379,713,014</b>           |

a/ Appropriation of \$26,800,000 for 1942 made to Treasury Department for payments to Federal Land Banks on account of reductions in interest rates.

b/ Appropriation of \$9,600,000 for 1942 made to Treasury Department for payments on account of reductions in interest rates.

c/ Includes a total of \$526,291 appropriated in the Third Supplemental National Defense Appropriation Act, 1942, for within-grade promotions.

d/ Includes a total estimate of \$1,643,596 (exclusive of \$13,498 from Commodity Credit Corporation funds) for within-grade promotions.

NOTE: Public Law 371, 77th Congress, approved December 23, 1941, appropriated \$35,000,000 to the Surplus Marketing Administration for emergency supplies for Territories and possessions. This appropriation was made too late for inclusion in the 1943 Budget schedules and is not included in table above.



| Bureau and Item  | Appropriations<br>1942 | Budget<br>estimates,<br>1943 | Increase or de-<br>crease, Budget<br>est., 1943<br>compared with<br>Apprs., 1942 |
|--|------------------------|------------------------------|--|
| Forest Service: Cooperative work ..  | \$1,000,000            | \$1,000,000                  | - -  |
| Agricultural Marketing Service:  |                        |                              |  |
| Farm products inspections .....  | 495,211                | 510,872                      | \$+15,661  |
| Classification of cotton for<br>Commodity Credit Corporation ...                                       | 275,000                | 275,000                      | - -  |
| Farm Security Administration:  |                        |                              |  |
| Payments in lieu of taxes and for<br>operation and maintenance of re-<br>settlement projects .....     | 2,300,000              | 2,250,000                    | -50,000  |
| State Rural Rehabilitation Corpora-<br>tion funds .....  | 2,125,000              | 1,750,000                    | -375,000   |
| Drainage District Assessments on<br>Acquired Lands .....   | 30,350                 | - -                          | -30,350  |
| Liquidation of Deposits, Reserve<br>for Maintenance and Repair, Lease<br>and Purchase Agreements ..... | 18,750                 | 22,500                       | +3,750   |
| Agricultural Adjustment Administra-<br>tion:   |                        |                              |  |
| Undistributed cotton price adjust-<br>ment payments .....  | 2,000                  | 1,000                        | -1,000   |
| Indemnity Fund, County Associa-<br>tions, Department of Agricul-<br>ture .....                         | 200                    | 15,000                       | +14,800  |
| Surplus Marketing Administration:  |                        |                              |  |
| Redemption of order stamps .....   | 213,300,000            | 162,100,000                  | -51,200,000  |
| Miscellaneous Contributed funds ....   | 86,500                 | 99,300                       | +12,800  |
| Unearned fees and other charges,<br>Section 8a(4), Commodity Exchange<br>Act .....                     | 200                    | 200                          | - -  |
| Return of excess deposits for repro-<br>ductions of photographs, mosaics,<br>and maps .....            | 2,495                  | 2,495                        | - -  |
| Unclaimed moneys of individuals<br>whose whereabouts are known .....                                   | 500                    | 500                          | - -  |
| Total, trust funds .....   | 219,636,206            | 168,026,867                  | -51,609,339  |

Prepared by: Office of Budget and Finance  
Division of Estimates and Allotments  
Estimates Section  
December 30, 1941



## PROJECT STATEMENTS

Following the custom of previous years, for the sake of simplicity and avoidance of confusion, "Project Statements" as shown in this book in general are limited to a breakdown of funds appropriated or allotted directly to the Department of Agriculture and do not generally include funds transferred from other Departments or establishments, although the latter are included in the Budget expenditure schedules under the items involved.

The Project Statements printed in the formal Budget and reprinted in the Subcommittee Print include, in addition to the direct funds, projects dealing with funds transferred from other Departments--for example, funds received from such agencies as the Navy Department or the Veterans' Administration for the inspection of meats by the Bureau of Animal Industry. Where it is desired to examine a project statement which includes such transferred funds, therefore, reference should be made to the Project Statements in the Budget or to the Subcommittee Print.



PROVISION FOR TRANSFERS IN PLACE OF ALLOTMENTS TO  
CERTAIN STAFF OFFICES

The Budget estimates propose uniform language in the appropriations "Salaries, Office of the Secretary of Agriculture", "Miscellaneous Expenses, Department of Agriculture", "Salaries and Expenses, Office of the Solicitor", "Salaries and Expenses, Office of Information", "Salaries and Expenses, Library", and "Salaries and Expenses, Bureau of Agricultural Economics", to provide for transfers to these appropriations, instead of allotments as heretofore, in a manner similar in effect to that adopted by Congress in the Agricultural Appropriation Act for 1942 with respect to the Office of the Solicitor and the Bureau of Agricultural Economics. Specifically, the language proposed for these items provides that there shall be transferred to and made a part of these appropriations such amounts, or portions thereof as may be determined by the Secretary of Agriculture (not exceeding a stated total amount in the case of each agency), from other appropriations or authorizations, as are provided in the budget schedules for the fiscal year 1943.

Incident to this uniform arrangement, the provisions specifying transfers to the Bureau of Agricultural Economics appearing under the various appropriations from which such transfers were authorized for 1942, have been deleted since the transfer authority is included under "Salaries and expenses, Bureau of Agricultural Economics", and the amounts of the transfers are indicated in the Budget schedules.





UNIFORM PASSENGER-CARRYING VEHICLE LANGUAGE PROVISIONS

The estimates include changes in language relating to passenger-carrying vehicles in all cases where limitations are stated in the language of the various appropriations, as follows (using the case of the Bureau of Entomology and Plant Quarantine as an example) (new language underscored, deleted matter enclosed with brackets);

"Total, Salaries and Expenses, Bureau of Entomology and Plant Quarantine, \$5,448,380, of which amount not to exceed \$713,230 may be expended for personal services in the District of Columbia, and [not to exceed \$36,600 shall be available] so much as may be necessary, within the unit limit of cost fixed by law, for the purchase of forty-five motor-propelled [and] or horse-drawn passenger-carrying vehicles necessary in the conduct of field work outside the District of Columbia."

The effect of these changes is to substitute a numerical limitation for the previous monetary lump sum limitation and is considered necessary to offset recent dislocations of budget occasioned by the following factors: (1) freight transportation costs, which are chargeable to the overall appropriation limitation for purchase of new cars (Comptroller General's Decision 20-739), have increased considerably as a result of the provisions of the 1940 Transportation Act which restricts the application of land grant freight rates to civil establishments of the Government; (2) the loss of a large portion of the salvage value realized from used cars disposed of by cash sale, the proceeds from which are deposited to Miscellaneous Receipts, thereby causing an increase in the amount chargeable to the overall appropriation limitations which are based on an exchange allowance for these old cars.



OFFICE OF THE SECRETARY

(a) SALARIES, OFFICE OF THE SECRETARY

Appropriation Act, 1942, plus \$4,555  
supplemental for within-grade  
promotions ..... \$613,979  
Transfers and allotments, 1942, as shown  
in Budget schedules ..... 1,122,819  
Total available, 1942 ..... 1,736,798

Budget estimate, 1943:  
Direct appropriation ..... 618,509  
Transfers as shown in Budget schedules. 1,000,488  
Total available, Budget estimate,  
1943 ..... 1,618,997

Change from 1942:  
Net reduction in total working funds .. - 122,331  
Additional for administrative pro-  
motions ..... + 4,530  
Net decrease in total available ... -117,801

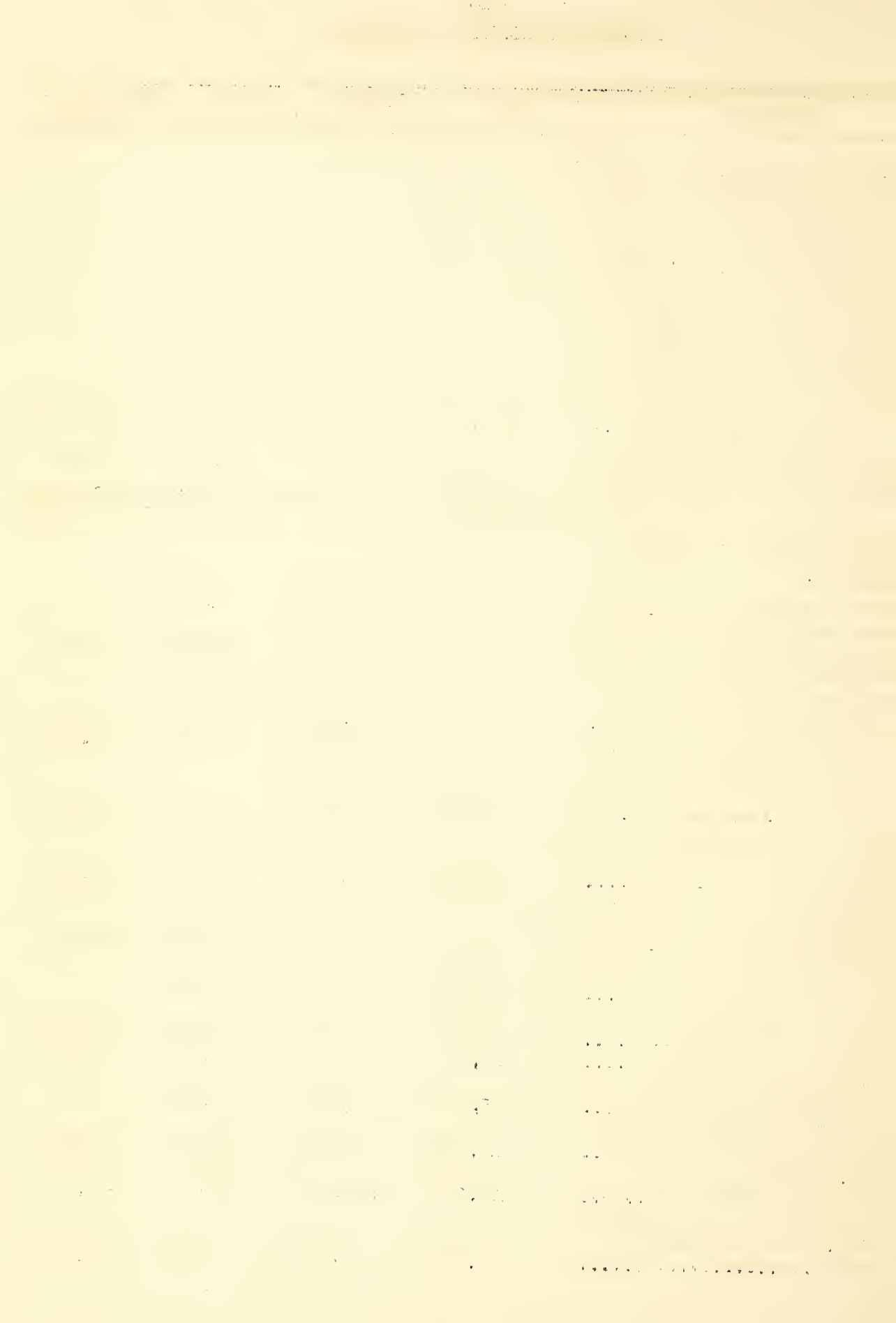
PROJECT STATEMENT

| Projects  | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|-----------|---------------------|---------------------|-------------------------|
| 1. General administration (in-<br>cluding offices of the<br>Secretary, Under Secretary,<br>and Assistant Secretary) ....  | \$165,971 | \$212,850           | \$171,269           | - \$41,581(1)           |
| 2. Personnel administration and<br>service. (including divisions<br>of classification, employment,<br>training, organization and per-<br>sonnel management, investigations<br>and personnel relations).....           | 413,402   | 486,360             | 446,279             | - 40,081 (1)            |
| 3. Budget and finance adminis-<br>tration and service (includ-<br>ing divisions of accounts,<br>estimates and allotments,<br>fiscal management, purchase,<br>sales, and traffic, and<br>bureau accounting service ... | 438,872   | 539,701             | 521,228             | - 18,473(1)             |
| 4. General operations (including<br>divisions of communications,<br>real estate, administrative<br>services, motor transport,<br>and Technical Advisory<br>Board) .....   | 248,411   | 293,846             | 281,636             | - 12,210(1)             |



## PROJECT STATEMENT - Continued

| Projects   | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|-----------|---------------------|---------------------|-------------------------|
| 5. Land use coordination (departmental coordination of all land-use surveys, policies and programs, including soil conservation, erosion control, rural rehabilitation, flood control, land utilization and purchase, submarginal land, water facilities in the arid and semi-arid States, and related programs) ..... | \$157,093 | \$199,486           | \$189,500           | - \$9,986(1)            |
| 6. Net cost of within-grade promotions .....   | - -       | 4,555               | 9,085               | + 4,530                 |
| Estimated savings and unobligated balance .....  | 25,728    | - -                 | - -                 | - -                     |
| Total available .....  | 1,449,477 | 1,736,798           | 1,618,997           | - 117,801(1)            |
| <u>Deduct transfers and/or allotments, as shown in Budget schedules:</u>   |           |                     |                     |                         |
| Special research fund .....  | 1,920     | 1,920               | 1,920               | - -                     |
| Conservation and use of agricultural land resources ...  | 322,468   | 394,794             | 357,140             | - 37,654                |
| Conservation and use of agricultural land resources (regional laboratories)....  | 3,200     | 3,200               | 3,200               | - -                     |
| Parity payments .....  | - -       | 36,760              | 26,760              | - 10,000                |
| Salaries and expenses, Agricultural Adjustment Administration .....  | 43,199    | 63,250              | - -                 | - 63,250                |
| Administrative expenses, Commodity Credit Corporation .....  | 40,362    | 51,610              | 49,610              | - 2,000                 |
| Exportation and domestic consumption of agricultural commodities .....   | 56,859    | 105,670             | 129,220             | + 23,550                |
| Administration of Sugar Act of 1937 .....  | 18,326    | 24,740              | 24,740              | - -                     |
| Administration of Federal Crop Insurance Act .....   | 39,091    | 66,500              | 71,590              | + 5,090                 |
| Expenses, farm tenancy .....   | 12,217    | 14,920              | 10,920              | - 4,000                 |
| Liquidation and management of resettlement projects .....  | 5,834     | 7,860               | 7,860               | - -                     |
| Land utilization and retirement of submarginal land ..   | 19,345    | 23,852              | 20,810              | - 3,042                 |
| Loans, grants, and rural rehabilitation .....  | 170,052   | 159,130             | 150,028             | - 9,102                 |
| Development of water facilities, arid and semi-arid areas .....  | 1,974     | 4,700               | 3,250               | - 1,450                 |





## PROJECT STATEMENT - Continued

| Projects   | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|----------|---------------------|---------------------|-------------------------|
| <u>Deduct transfers and/or allotments - Continued.</u>   |          |                     |                     |                         |
| Cooperative farm forestry ...  | - -      | \$1,625             | \$1,450             | - \$175                 |
| Salaries and expenses, rural electrification .....   | \$56,904 | 64,590              | 50,590              | - 14,000                |
| Flood control, general (transfer to Agriculture) .....   | 49,576   | 59,935              | 60,730              | + 795                   |
| Removal and reestablishment of Arlington Farm, Va. (transfer to Agriculture) ..  | 5,118    | 30,283              | 23,190              | - 7,093                 |
| Salaries and expenses, Soil Conservation Service .....   | 10,358   | 7,480               | 7,480               | - -                     |
| Salaries and expenses, Farm Credit Administration .....  | 14,340   | - -                 | - -                 | - -                     |
| Salaries and expenses, Bureau of Animal Industry .....   | 5,125    | - -                 | - -                 | - -                     |
| <u>Transferred to:</u>   |          |                     |                     |                         |
| Salaries and expenses, public buildings and grounds in the District of Columbia, Public Buildings Administration ..... | + 4,805  | - -                 | - -                 | - -                     |
| Total direct appropriation   | 578,014  | 613,979             | 618,509             | + 4,530                 |

## INCREASES OR DECREASES

(1) The Budget estimate contemplates a net reduction of \$117,801 in the funds transferred to the various branches of the Office of the Secretary for departmental administration and services. This consists of (a) an increase of \$4,530 for administrative promotions under the Ramspeck-Mead Act, and (b) a decrease of \$122,331 in allotted funds. In addition, it will be necessary to absorb administrative promotions in the estimated sum of \$29,393, making, in all, a total reduction of \$151,724 in funds available.

## CHANGES IN LANGUAGE

The changes proposed in the language of this item contemplate:

(1) The deletion of the so-called "average salary" clause is recommended since the Comptroller General in decision B-19487, dated August 8, 1941, advised the Bureau of the Budget that the Ramspeck-Mead Promotion Act (Public No. 200, 77th Congress) has rendered inoperative the average salary clauses in the several Departmental appropriation acts.



(2) Authority to make microfilm and other photographic reproductions of books and other library materials was granted for 1942 in a Deficiency Act, and the Budget provides for the elimination of the reference to a particular year in order to avoid the necessity for changing the fiscal year reference each year.

(3) Uniform language provisions relating to transfers to staff offices of funds has been submitted, as explained in the general statement on this subject on page 18.

(4) The other changes are minor in character and are intended to eliminate excess wordage from the first sentence which refers to the positions of Secretary and Under Secretary of Agriculture.

#### WORK UNDER THIS APPROPRIATION

The Office of the Secretary provides over-all administration and supervision of the national agricultural program and Federal agricultural statutes, formulates broad agricultural policies, develops and controls the administrative policies of the Department, and is responsible for agriculture's part in the national war effort. The office exercises general supervision over the personnel, fiscal, housing, and other operational activities of the Department, and coordinates and integrates the programs of the various bureaus. These organizations are financed by the appropriations "Salaries, Office of the Secretary" and "Miscellaneous Expenses, Department of Agriculture", which funds are augmented by transfers from applicable funds for the work of the Department as a whole.

In order that the Department might fulfill its responsibilities to the nation, particularly at a time when every effort must be bent to the strengthening of our country, the problem of feeding not only our own nation but that of other countries also engaged in the struggle against aggression becomes extremely acute. The supervision and control of the Department's activities to the end that these purposes may be attained is a necessary function requiring constant attention. Personnel must be secured, trained, and retained to do the many complex jobs, funds must be secured and properly expended, communication services of all types must be provided, equipment must be procured and properly and efficiently used, the employees of the Department must be adequately housed in order that their work can be satisfactorily performed, and the programs of the bureaus must be coordinated and integrated so that they reach the farmers and the general public as one agricultural program for the nation as a whole. If the Department is to be successful in the administration of the Federal agricultural statutes, and if it is to meet the need of the country in this critical period, these services must all be adequately staffed and efficiently managed.

The Secretary of Agriculture carries out the above responsibilities with the assistance of staff officers whose work is divided among the groups described below.

##### Project 1. General administration

The general administration of the Department is vested in the Office of the Secretary, which includes the Under Secretary, Assistant Secretary, and facilitating staff.

Our entry into the war has placed tremendous additional responsibilities upon the Department of Agriculture. It now becomes necessary for the agricultural





industry of the country, under the leadership of the Department, to increase, beyond previous estimates, the production of certain vital food stuffs, such as dairy products, meats, vegetables, and the like, and yet at the same time adjust production of certain commodities for which the world market has largely disappeared. It is necessary for us to feed not only our own country but that of many of the other nations of the world, and our production programs have to be geared accordingly. The country is furnishing hundreds of millions of dollars worth of food to Great Britain and other allies under the Lend-Lease program. Agriculture must furnish these requirements and the requirements of our own people, as well as accumulate reserves and prepare programs to protect agriculture after the emergency is over.

In order to enable the Department to adequately meet the impact of the war, the Secretary has reorganized the Department, creating a Defense Board of departmental officials, and the activities of seventeen program agencies have been consolidated into eight groups so that more effective coordination of their interrelated programs may be attained. Through this method, the Department is subordinating all activities to the total war effort.

## Project 2. Personnel administration and service.

The Office of Personnel has six divisions staffed with trained personnel in classification and salary administration, organization, recruitment, placement, training, employee relations, safety, investigational work, and discipline. It assists and advises the Secretary on personnel matters and issues, through the delegation of authority, rules defining policies and procedures relating to the management of personnel and the execution of personnel transactions. On behalf of the Secretary, the Office of Personnel discharges the Secretary's responsibilities under the Classification Act of 1923 as amended, and conducts the Department's business with the Civil Service Commission, and insofar as they relate to personnel problems with the General Accounting Office and other Federal managerial agencies. At the request of the bureaus and the direction of the Secretary, the Office investigates cases involving possible irregularities, delinquencies and misconducts; maintains personnel records and renders advisory service to the bureaus and offices of the Department regarding all phases of personnel management.

The program objectives of the Department have been, and are being, expanded and redefined to meet the wartime demands of the nation for food and fiber. These objectives may be realized in an effective and timely fashion only if competent employees are recruited, if their skills and knowledges are properly matched with the work to be done, if they are trained and supervised in what is expected of them, and if the conditions under which they work are such as to enable them to function at their best.

To the fulfillment of these ends, the Office of Personnel is directing its every effort in order to assure prompt as well as accurate decisions on personnel matters. Current activities include: (a) developing policies and procedures, and instituting training programs in connection with delegations of authority to bureau personnel officers and operators which will enable them to make decisions and take action at the source of the personnel problem (The U. S. Civil Service Commission has made important delegations of authority to departmental personnel officers. In a large department such as Agriculture the benefits of such delegation may be realized only if they are carried out to the bureaus and as near to the source of the personnel problem as is feasible ); (b) eliminating all



put the absolute minimum procedures required to complete personnel transactions; (c) amending personnel policies to conform to present requirements; (d) reorganizing the Office of Personnel to eliminate the movement of personnel actions through one narrow channel and establishing a number of channels to reduce delays in completing personnel actions; (e) interpreting changes in Federal service-wide personnel policies and preparing communications dealing with these for distribution to bureau personnel officers and bureau administrators; (f) participating in decentralization of activities located in Washington to the field and establishing procedures to take care of personnel actions after such decentralization; (g) developing standards of performance for and appraisal of effectiveness of bureau personnel office programs; (h) analyzing the cost of personnel administration to assure that expenditures are being made for only essential personnel operations.

### Project 3. Budget and finance administration and service

The Office of Budget and Finance operates through budget examiners and liaison officers for the various action program agencies of the Department and the following types of functional units: Estimates and Allotments, Budgetary Reports and Statistics, Legislative Service, Fiscal Management, Accounts, Fiscal Examination, Claims, Purchases, Sales and Traffic, etc.

The most significant continuing program of work of the office is the preparation, in cooperation with the bureaus, of the annual budget for the Department and its presentation and justification to the Bureau of the Budget and the Congress. In examining this budget, the Office coordinates the estimates of the bureaus to ensure against duplication of function and effort and reviews all programs for their importance in relation to defense. Although material progress has already been realized, continuing efforts are being made to improve the quality and content of the budgetary material and to put it in as concise, yet informative, a form as possible for the use of the Appropriations Committees.

From data obtained from the set of summary and control accounts which the Office maintains, and from the records and reports of the departmental project system and other sources, activity and financial reports are prepared on the various programs of the Department for departmental administrative purposes. The Office also reviews the budgetary and financial aspects of dockets and other program proposals, involving special authorizations, changes in regulations, etc., which are presented for Secretarial or other departmental approval.

In a continuing effort to improve the quality and effectiveness of budgetary, fiscal and accounting activities, the office assists the bureaus in the handling of special problems, advises and consults with them on budgetary and fiscal matters and develops and standardizes methods and procedures. Particular attention is being given to agencies administering the defense programs in order that their urgent objectives may be attained in the earliest possible time consistent with the proper safeguarding of public funds.

Other significant activities of the office include the performance of the contracting function for the more important and complex procurement requirements; the securing of priorities from the Office of Production Management for the purchase of materials to meet the Department's needs; the operation of a central storeroom for supplies in common use; the operation of an accounting service for certain units which do not maintain their own accounting offices; the maintenance of





appropriation control, records of transferred and allotted funds, and related accounts for the Department as a whole; the periodic examination of the fiscal offices of the operating bureaus.

#### Project 4. General operations

The Office of Plant and Operations is responsible for departmental activities through divisions of Real Estate, Communications, Motor Transport, Technical Advisory Board, and Administrative Services for the Office of the Secretary.

The Real Estate Division, of the Office of Plant and Operations, is making an earnest effort to meet the impact of the national defense program upon the housing situation in the District of Columbia and throughout the country. It has been necessary to relocate a number of bureaus of the Department after space they had been occupying was requisitioned by the War and Navy Departments. Constant efforts have been made to realign the occupancy of our space so that it may be used more efficiently, and consequently release space for other activities.

This Division, in collaboration with Public Buildings Administration, is taking the lead in developing and managing the civilian defense plans necessary to the protection and safety of the Department's property and its employees.

Some of the Department's offices in Washington have been moved to Beltsville. The office has satisfactorily accomplished a space consolidation at Lincoln, Nebraska, relocating seven regional departmental offices in one building under much more efficient and practical housing conditions than had formerly prevailed. Similar efforts are in progress in other parts of the country.

The Technical Advisory Board is working with the bureaus of the Department in developing equipment and material mobilization plans to enable the Department of Agriculture to render all possible assistance to the country in its defense efforts. These mobilization plans will provide for ways and means of using Department equipment in connection with the civilian defense of the country.

The Board is collaborating with the Bureau of the Budget regarding mapping standards, and is serving as a liaison between that agency, the War and Navy Departments, and the various bureaus in the Department engaged in preparing topographic maps for the use of the military forces in connection with the defense of the country. It is also collaborating with the Bureau of Standards on camera tests, and developing specifications for scientific equipment.

The consolidated repair shop program has been enlarged and the Department now has twenty repair depots organized and equipped to handle many types of automotive repair necessary and to furnish service to the bureaus of the Department, and even to other Government agencies. These repair shops will be available in case of any emergency needs of the country for the repair of equipment used by military forces as well as other civilian parts of the Government.

The Technical Advisory Board has, during the past year, developed forty standard specifications for many different types of scientific and mechanical equipment for the Department's use, all of which involved technical engineering plans. The requirements of the Board for the inclusion of proper types of service requirements and specifications have resulted in the Department's securing the equipment



actually needed to perform the work on such a basis so that the contractors as well as the bureaus are fully satisfied. Advice and assistance have been rendered to various bureaus on a great many scientific and engineering problems which constantly arise in the day to day operations of the work.

The Communications Division has modernized the Department's telephone and telegraph processes through the installation of new automatic machines and simplification of procedures. The volume of telegraph and telephone business has increased over 100% because of the defense activities of the Department and the modernization of this equipment is the only factor which has enabled the Department to absorb this tremendous increase without a corresponding increase in personnel, although some increase in personnel has been necessary.

Several operating bureaus have requested and service has been furnished them in the reorganization of their mail, files and record procedures to obtain more efficiency through departmentally standardized practices and forms. In view of the war conditions this Division is making every effort to speed up archival processes either through the transfer of old records to the Archives or through the disposition through normal processes.

The Administrative Services Division has rendered budgetary, personnel, supply and equipment, and travel service to the various branches of the Office of the Secretary. As the work of the Department as a whole has grown this office has had more work to do. During the last year, approximately 33,000 visitors to the building, and 46,000 telephone inquiries were handled for people who were contacting the Department without knowing exactly where they should go to transact their business.

The Motor Transport Service renders drayage and trucking service to the Department in Washington and repairs and services to Department-owned field equipment when it is in Washington.

#### Project 5. Land use coordination

The Office of Land Use Coordination directs the administrative coordination of land, water and credit policy and program activities as they relate to the work of the Department as a whole. In addition to its technical coordinating staff, it supervises the Central Flood Control Office and the offices of Coordinators for the Northern and Southern Great Plains areas.

Together with the Office of Budget and Finance the office has undertaken review and clearance of Department public works with the National Resources Planning Board, pursuant to the terms of Executive Order 8455. This involved establishing evaluation criteria and standards for priority rating in accordance with policies of the National Resources Planning Board, as well as the integration of Federal proposals affecting land use with the work carried on by Department agencies.

The Department's Flood Control Program was reorganized to give primary responsibility to individual bureaus for specific functions. Work on surveys was accelerated with a view to providing projects for the post-defense period. The office made arrangements for operations to commence on one watershed.

The office cooperated on a study of the Department's resources for aid in agricultural emergencies and an Emergencies Committee was subsequently set up under the chairmanship of a representative of the office.





On July 1, 1941, the Secretary assigned responsibility to the Office of Land Use Coordination for coordination of Department credit programs in addition to the integration of credit and land-use policies which had been underway for the previous eighteen months.

The office directed a study of the various policies governing exploitation of minerals on land under the jurisdiction of several Department agencies. The study led to the formulation of a uniform Department minerals policy consistent with the Department's total land-use program and basic legislation. Leases for drilling have been awarded in a few critical areas. For both the study and development of leasing procedure, cooperation of the Geological Survey was secured.

The office assisted in the acquisition of lands for defense activities; (a) by negotiating a memorandum of understanding with the War Department to make Agriculture's land acquisition personnel available to the Secretary of War, (b) by helping in some instances to make available suitable Department land, (c) by working out with Department agencies a procedure for relocating farmers displaced from defense sites, and (d) by assisting in negotiations for consideration of agricultural values in defense site selection.

In addition to many new problems, the office continued work along established procedures in coordinating regular land acquisition, land management, photogrammetric and other surveys, water facilities and farm forestry activities, and intradepartmental and interdepartmental land and water policies and programs. Some items in the program for the office for the coming year include: establishing procedures for getting over-all departmental policies more quickly and effectively in use in the field, particularly at the county level; developing a departmental policy on inter-program compliance, for example, on the extent to which cooperators in other programs should be required to comply with Agricultural Adjustment Administration; obtaining consideration by the States of land-use legislation needed to supplement Federal efforts; reaching inter-agency agreement on common regional State and local headquarters; working out of closer relationships between general planning and operations; developing a conservation clause for farm mortgages; further clarification of the Department forest policies and programs, and further adaptation of Department programs to the special needs of the Western States.

The Office of Land Use Coordination has two field offices, one at Amarillo, Texas, and one at Lincoln, Nebraska. These carry on field integration of action programs with a purpose of adapting national policies and Departmental procedures to the special needs of the High Plains.

#### QUARTERS, HEAT, AND LIGHT ALLOWANCE AUTHORIZATION FOR 1943

This proviso limits the total that may be paid from the several bureau appropriations applicable as allowances to officers and employees of the Department of Agriculture permanently stationed in foreign countries, for living quarters, including heat, fuel and light, under the provisions of the Act of June 26, 1930 (5 U.S.C. 118a).

The estimated allocations to the bureaus involved for the fiscal years 1941, 1942 and 1943 are as follows:





|                                    | <u>Actual</u><br><u>F.Y. 1941</u> | <u>Estimated,</u><br><u>F.Y. 1942</u> | <u>Estimated,</u><br><u>F.Y. 1943</u> |
|------------------------------------|-----------------------------------|---------------------------------------|---------------------------------------|
| Bureau of Entomology and Plant     |                                   |                                       |                                       |
| Quarantine .....                   | \$6,895                           | \$8,400                               | \$5,460                               |
| Departmental reserve authority for |                                   |                                       |                                       |
| contingencies .....                | <u>18,105</u>                     | <u>16,600</u>                         | <u>19,540</u>                         |
| Total .....                        | 25,000                            | 25,000                                | 25,000                                |

Because of existing war conditions, it may not be necessary to utilize the total amount of this authorization during 1943. Continuation of general authority in the same sum as at present is recommended, in order that the Department may be enabled to meet whatever situation may arise in 1943.

A detailed schedule of the allowance amounts for 1941, and the present estimates for 1942 and 1943 follow:

1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part of the document is a list of names and addresses of the members of the committee.

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16. The sixteenth part of the document is a list of names and addresses of the members of the committee.

| Appropriation and subappropriation         | Title of position      | Post of duty                    | Classification of post | Domestic status | Group | Allowances |                |             |
|--|------------------------|---------------------------------|------------------------|-----------------|-------|------------|----------------|-------------|
|  |                        |                                 |                        |                 |       | Salary     | Estimated 1943 | Actual 1941 |
| Bureau of Entomology and Plant Quarantine: |                        |                                 |                        |                 |       |            |                |             |
|  | Salaries and expenses: |                                 |                        |                 |       |            |                |             |
|  | Fruit insects .....    |                                 |                        |                 |       |            |                |             |
|  | Prin. Entomologist     | Mexico City, Mex.               | IV                     | M               | 2     | \$6,000    | \$720          | \$720       |
|  | Senior Entomologist    | " "                             | IV                     | M               | 3     | 4,800      | 720            | 720         |
|  | Assoc. Entomologist    | " "                             | IV                     | M               | 3     | 3,200      | 720            | 720         |
| Foreign parasites .....                    | Assoc. Chemist         | " "                             | IV                     | M               | 3     | 3,200      | 720            | 720         |
|  | Junior Entomologist    | " "                             | IV                     | M               | 3     | 2,000      | 720            | 720         |
|  | Asst. Entomologist     | Hacienda Santa Engracia, Mexico | II                     | M               | 3     | 2,600      | 660            | 660         |
|  | Senior Entomologist    | Montevideo, Uruguay             | IV                     | M               | 2     | 4,600      | 1,200          | 1,200       |
|  | Assoc. Entomologist    | " "                             | IV                     | M               | 3     | 3,200      | 1,020          | ---         |
|  | " "                    | Yokohama, Japan                 | IV                     | S               | 2     | 3,200      | 1,020          | 1,020       |
| Total .....                                | Asst. Entomologist     | " "                             | IV                     | S               | 3     | 2,600      | 900            | 415         |
|  |                        |                                 |                        |                 |       | 5,460      | 8,400          | 6,895       |

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(b) MISCELLANEOUS EXPENSES, DEPARTMENT OF AGRICULTURE

|   |                |
|---|----------------|
| Appropriation Act, 1942 .....               | \$99,341       |
| Transfers and allotments, 1942, as shown in |                |
| Budget schedules .....                      | <u>150,695</u> |
| Total available .....                       | <u>250,036</u> |

|   |                |
|---|----------------|
| Budget estimate, 1943:                        |                |
| Direct appropriation .....                    | 98,341         |
| Transfers, as shown in Budget schedules ..... | <u>131,605</u> |
| Total available, Budget estimate, 1943 .....  | <u>229,946</u> |

|  |                |
|--|----------------|
| Change from 1942:                          |                |
| Net reduction in total working funds ..... | <u>-20,090</u> |

PROJECT STATEMENT

| Projects  | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|-----------|---------------------|---------------------|-------------------------|
| Miscellaneous expenses, Department of Agriculture .....                         | \$220,838 | \$250,036           | \$229,946           | - \$20,090(1)           |
| Estimated savings and unobligated balance .....                                 | 24,678    | - -                 | - -                 | - -                     |
| Total available .....   | 245,516   | 250,036             | 229,946             | - 20,090                |
| <u>Deduct transfers and/or allotments:</u>                                      |           |                     |                     |                         |
| Enforcement of the Commodity Exchange Act .....                                 | - -       | 1,940               | 1,940               | - -                     |
| Conservation and use of agricultural land resources....                         | 85,027    | 61,726              | 56,380              | - 5,346                 |
| Conservation and use of agricultural land resources (regional laboratories) ... | 800       | 800                 | 800                 | - -                     |
| Parity payments .....   | - -       | 2,020               | 1,501               | - 519                   |
| Salaries and expenses, Agricultural Adjustment Administration .....             | 10,851    | 2,000               | - -                 | - 2,000                 |
| Administrative expenses, Commodity Credit Corporation..                         | 10,228    | 11,780              | 11,780              | - -                     |
| Exportation and domestic consumption of agricultural commodities .....          | 11,021    | 7,165               | 6,165               | - 1,000                 |
| Administration of Sugar Act of 1937 .....                                       | 1,674     | 630                 | 630                 | - -                     |
| Administration of Federal Crop Insurance Act .....                              | 3,409     | 910                 | 910                 | - -                     |
| Expenses, farm tenancy .....  | 1,482     | 580                 | 580                 | - -                     |
| Liquidation and management of resettlement projects .....                       | 2,026     | - -                 | - -                 | - -                     |

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

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## PROJECT STATEMENT - Continued

| Projects   | 1941    | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|---------|---------------------|---------------------|-------------------------|
| <u>educt transfers and/or allotments - Continued.</u>                              |         |                     |                     |                         |
| Land utilization and retirement of submarginal land ...                            | \$1,649 | \$368               | \$410               | + \$42                  |
| Loans, grants, and rural rehabilitation .....                                      | - -     | 29,719              | 21,429              | - 8,290                 |
| Development of water facilities, arid and semi-arid areas .....                    | 3,026   | 300                 | 1,750               | + 1,450                 |
| Cooperative farm forestry ....   | - -     | 375                 | 550                 | + 175                   |
| Salaries and expenses, Rural Electrification .....                                 | 9,096   | 20,620              | 18,020              | - 2,600                 |
| Flood control, general (transfer to Agriculture) .....                             | 6,134   | 4,295               | 3,930               | - 365                   |
| Salaries and expenses, Soil Conservation Service .....                             | - -     | 2,520               | 2,520               | - -                     |
| Removal and reestablishment of Arlington Farm, Va. (transfer to Agriculture) ..... | 152     | 2,947               | 2,310               | - 637                   |
| Total, direct appropriation  | 98,941  | 99,341              | 98,341              | - 1,000                 |

## INCREASES OR DECREASES

(1) The decrease of \$20,090 in total funds available under this appropriation item will be effected through the curtailment of travel, communications, supplies, etc., and the elimination in 1943 of amounts available in 1942 for the purchase of office furnishings and fixtures.

## CHANGES IN LANGUAGE

The language of this item includes the uniform provisions for transfers as explained on page 18.

## WORK UNDER THIS APPROPRIATION

The funds available under this appropriation item are used to pay for supplies, equipment, communications, travel, and other general operating expenses necessary in connection with the work described under the appropriation item "Salaries, Office of the Secretary", and for the compensation of the personnel of the Motor Transport Division and the Central Supply Section whose salaries are eventually paid by various bureaus of the Department through reimbursements for services rendered.



CHICAGO, ILL. 60457

Dear Sirs:

I have the honor to acknowledge the receipt of your letter of the 10th inst. and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.

I am, Sir, very respectfully,  
Your obedient servant,  
J. H. [Signature]

(c) SALARIES AND EXPENSES, AGRICULTURAL ADJUSTMENT ADMINISTRATION  
(OFFICE OF THE SECRETARY)

The Budget schedule shows the funds available from the appropriation under section 12(a) of the Act of May 12, 1933, for reallocation by the Secretary for emergency adjustments in production of agricultural commodities.

(d) EMERGENCY FUND FOR THE PRESIDENT, NATIONAL DEFENSE  
(ALLOTMENT TO AGRICULTURE)

The Budget schedule shows the distribution of the allocation of \$46,940 from the Emergency Fund of the President for expenses arising out of moving Department of Agriculture units out of Washington, as follows:

|   |               |
|---|---------------|
| Forest Service, region 7, moved to<br>Philadelphia, Pennsylvania .....  | \$28,450      |
| Investigation and audit unit of Packers and<br>Stockyards Division moved to Kansas City,<br>Missouri (Agricultural Marketing Service) ..... | 3,597         |
| Animal Industry units moved to Beltsville, Md. ....   | <u>14,893</u> |
| Total .....   | 46,940        |

(e) EMERGENCY RELIEF, AGRICULTURE, CONTINUATION OF EXISTING PROJECTS,  
ADMINISTRATIVE EXPENSES (TRANSFER FROM WORK PROJECTS ADMINISTRATION)

The Budget schedule reflects the allotments to bureaus and agencies of the Department for administrative expenses arising out of the operation of Federal agency W.P.A. projects. The funds for the fiscal year 1942 were available until December 31, 1941.

(f) EMERGENCY RELIEF, AGRICULTURE, PLANNING AND REVIEW OF WORK  
PROJECTS ADMINISTRATION PROJECTS (TRANSFER FROM WORK PROJECTS  
ADMINISTRATION)

The Budget schedule reflects the allotments to bureaus and agencies of the Department for (1) necessary planning and administration in connection with the continuation in the State W.P.A. programs of the type of activities conducted under the Federal Agency W.P.A. program prior to January 1, 1942. (2) providing the necessary administrative and technical services to adequately review for the Work Projects Administration non-Federal projects the activities of which fall within the scope of the functions of the Department of Agriculture.



SUPPLEMENTAL FUNDS

| Projects  | Allotments<br>1941 | Estimated<br>allotments<br>1942 | Estimated<br>allotments<br>1943 |
|---|--------------------|---------------------------------|---------------------------------|
| <u>Direct Allotments</u>  |                    |                                 |                                 |
| <u>Emergency Relief Act (Transfer from W.P.A.):</u>   |                    |                                 |                                 |
| Continuation of existing projects .....   | \$22,400           | \$22,400                        | (a)                             |
| Planning and review of W.P.A. projects .....  | - -                | 9,460                           | (b)                             |
| Total, Direct allotments...   | 22,400             | 31,860                          |                                 |
| <u>Indirect Allotment</u>   |                    |                                 |                                 |
| <u>Civilian Conservation Corps (Act of June 28, 1937, and supplemental Acts; indirect allotment, through War Department)...</u> | 29,584             | 44,460                          | (b)                             |

(a) No allocations are anticipated for 1943 since emergency relief projects under the jurisdiction of the Department were terminated as of December 31, 1941.

(b) 1943 allocation not yet available.



## OFFICE OF THE SOLICITOR

Appropriation Act, 1942, plus \$22,860  
 supplemental for within-grade  
 promotions ..... \$232,395  
 Transfers, 1942, as shown in Budget  
 schedules ..... 2,234,649  
 Total available ..... 2,467,044

Budget estimate, 1943:  
 Direct appropriation ..... 213,686  
 Transfers, as shown in Budget  
 schedules ..... 1,937,749  
 Total available, Budget estimate,  
 1943 ..... 2,151,435

Change from 1942:  
 Net reduction in total working funds. - 296,900  
 Decrease in funds for administrative  
 promotions ..... - 18,709  
 Net decrease ..... - 315,609

## PROJECT STATEMENT

| Projects  | 1941        | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|-------------|---------------------|---------------------|-------------------------|
| 1. Legal services, advice and<br>assistance .....                                       | \$2,213,756 | \$2,444,184         | \$2,147,284         | -\$296,900(1)           |
| 2. Net cost of within-grade<br>promotions .....   | - -         | 22,860              | 4,151               | - 18,709                |
| Estimated savings and unobli-<br>gated balance .....                                    | 65,778      | - -                 | - -                 | - -                     |
| Total available .....   | 2,279,534   | 2,467,044           | 2,151,435           | -315,609                |
| Deduct allotments and<br>transfers:   |             |                     |                     |                         |
| Salaries and expenses, Forest<br>Service, national forest<br>protection and management. | - -         | - -                 | 16,343              | + 16,343                |
| Salaries and expenses, Bureau<br>of Animal Industry, meat<br>inspection .....           | 3,161       | - -                 | - -                 | - -                     |
| Salaries and expenses, Ag-<br>ricultural Adjustment<br>Administration .....             | 135,620     | 135,120             | - -                 | -135,120                |
| Exportation and domestic<br>consumption of agricul-<br>tural commodities .....          | 109,606     | 109,606             | 152,988             | + 43,382                |
| Conservation and use of ag-<br>ricultural land resources.                               | 94,312      | 93,812              | 105,779             | + 11,967                |

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| Projects   | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|----------|---------------------|---------------------|-------------------------|
| Deduct allotments and transfers - Continued.                                 |          |                     |                     |                         |
| Adjustments in freight rates for farm products .....                         | \$15,540 | \$15,540            | \$15,849            | + \$309                 |
| Parity payments .....  | 23,577   | 23,577              | 24,048              | + 471                   |
| Sugar Act of 1937 .....  | 40,991   | 40,991              | 36,768              | - 4,223                 |
| Federal Crop Insurance Act..   | 45,922   | 65,382              | 60,770              | - 4,612                 |
| Acquisition of lands for protection of watersheds of navigable streams ..... | 65,500   | 80,000              | 50,000              | - 30,000                |
| Land utilization and retirement of submarginal land..                        | 178,453  | 125,000             | 75,000              | - 50,000                |
| Administrative expenses, farm tenancy .....                                  | 191,324  | 199,700             | 150,000             | - 49,700                |
| Liquidation and management of resettlement projects..                        | 56,250   | 56,250              | 56,250              | - -                     |
| Loans, grants, and rural rehabilitation .....                                | 346,617  | 358,135             | 305,976             | - 52,159                |
| Flood control .....  | 12,242   | 9,095               | 9,095               | - -                     |
| Salaries and expenses, Soil Conservation Service .....                       | 36,150   | 36,150              | 25,498              | - 10,652                |
| Administrative expenses, Commodity Credit Corporation .....                  | 31,299   | 39,799              | 38,755              | - 1,044                 |
| Development of water facilities, arid and semi-arid areas .....              | - -      | - -                 | 5,000               | + 5,000                 |
| Water conservation and utilization projects .....                            | - -      | 37,500              | 28,548              | - 8,952                 |
| Regional laboratories .....  | - -      | - -                 | 2,800               | + 2,800                 |
| Salaries and expenses, Farm Credit Administration .....                      | 333,617  | 362,007             | 354,368             | - 7,639                 |
| Salaries and expenses, Rural Electrification Administration .....            | 352,998  | 446,985             | 415,094             | - 31,891                |
| Northeastern Timber Salvage Administration .....                             | - -      | - -                 | 8,820               | + 8,820                 |
| Total, direct appropriation  | 206,355  | 232,395             | 213,686             | - 18,709                |

#### DECREASES

(1) The decrease of \$315,609 in the total funds available under this item consists of a decrease of \$18,709 for within-grade promotions, which amount will necessarily be absorbed; and a decrease of \$296,900 which will be met by curtailment of expenditures for travel, equipment, and miscellaneous expenses, and a reduction in personnel, as follows:

(a) The reduction in the Rural Electrification Administration program will allow the Office of the Solicitor to perform the legal services required by that program with less employees and a reduction in miscellaneous expenses.



(b) The postponement of new land acquisition programs until the post-war period necessitates a reduction of the personnel engaged in handling the legal work arising under such programs.

(c) The reduction in the Farm Tenancy program, the Loans, Grants and Rural Rehabilitation programs, and the so-called "Wheeler-Case" program, administered by the Farm Security Administration, will enable the Office of the Solicitor to perform the legal work in connection with these programs on a reduced basis.

(d) The reduction in the programs administered by the Surplus Marketing Administration requires a reduction in the legal services to be performed in connection with those programs.

(e) The reduction in the funds for legal services in connection with the soil erosion control programs administered by the Soil Conservation Service will be met by curtailing personnel and other expenses.

(f) The reduction in the Commodity Credit Corporation transfer, in the Federal Crop Insurance Act transfer, and in the transfer of funds for the legal work under the Sugar Act of 1937 are reductions in the travel and miscellaneous expenses in connection with those programs, as determined by the Office of the Solicitor upon the basis of past experience.

(g) The reduction in the funds for legal services in connection with the Farm Credit Administration will be met by curtailing personnel and other expenses.

#### CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

"For all legal services for the Department of Agriculture, necessary expenses for the Office of Solicitor, including personal services in the District of Columbia and elsewhere, [including clerical and other necessary expenses incident thereto, \$209,535] purchase of lawbooks, books of reference, and periodicals, and payment of fees or dues for the use of law libraries by attorneys in the field service, \$213,686, together with [not to exceed] such amounts from other appropriations or authorizations as are provided in the schedules in the Budget for the fiscal year [1942] 1943 for such [services and other] expenses, which several amounts or portions thereof, as may be determined by the Secretary, not exceeding a total of \$1,937,749, shall be transferred to and made a part of this appropriation; Provided, That there may be expended for personal services in the District of Columbia not to exceed the total amount set up in the Budget schedule for [such fiscal year for] such purpose under [the several appropriations herein involved; Provided further, That the Secretary of Agriculture, in his discretion, may transfer to this appropriation, from the funds available for the operations of the Rural Electrification Administration and the Farm Credit Administration, such sums as he may determine are properly allocable to the cost of providing legal services for these agencies, in the District of Columbia and elsewhere, including clerical and other necessary expenses incident thereto; Provided further, That





no part of the funds provided in this appropriation shall be used to pay any salary ~~for~~ legal services in excess of that authorized by law for the Solicitor of the Department of Agriculture] this appropriation."

The first new phrase inserted in the paragraph, i.e., "necessary expenses for the Office of the Solicitor, including personal services", is clarifying language and conforms to the usual pattern of appropriation language for items of this type. This phrase will permit the deletion of the words, "including clerical and other necessary expenses incident thereto".

The second new phrase, "purchase of lawbooks, books of reference, and periodicals and payment of fees or dues for the use of law libraries by attorneys in the field service", provides the Office of the Solicitor with the necessary authority to expend funds for law books and legal periodicals at the seat of Government (31 U.S.C. 678). Prior to the change in language with respect to the Office of the Solicitor contained in the 1942 Agricultural Appropriation Act, providing for transfers from other appropriations in lieu of allotments, the Solicitor was enabled to make such expenditures from funds allotted from the appropriations for the various programs of the Department. Since the appropriation for the Office of the Solicitor does not contain specific authority for the purchase of law books and periodicals, the consolidation of funds previously allotted to the Office of the Solicitor with the appropriation for the Office of the Solicitor makes it necessary during fiscal year 1942 to make allotments from program funds to the library for such purchases and to reduce in corresponding amounts the transfers authorized by the 1942 act to the Office of the Solicitor.

The third change deletes the proviso, "Provided further, That the Secretary of Agriculture, in his discretion, may transfer to this appropriation, from the funds available for the operations of the Rural Electrification Administration and the Farm Credit Administration, such sums as he may determine are properly allocable to the cost of providing legal services for these agencies, in the District of Columbia and elsewhere, including clerical and other necessary expenses incident thereto". This proviso is not necessary in the language of the item for 1943 inasmuch as the Budget estimates provide for transfers of funds with which to defray the cost of providing legal services for the Rural Electrification Administration and the Farm Credit Administration.

The fourth change deletes the proviso, "Provided further, That no part of the funds provided in this appropriation shall be used to pay any salary for legal services in excess of that authorized by law for the Solicitor of the Department of Agriculture". At the present time, no "salary for legal services in excess of that authorized by law for the Solicitor of the Department of Agriculture" is being paid. Furthermore, it would be impossible to pay such a salary during the next fiscal year because any effort in that direction would have to be submitted to the Civil Service Commission for approval in accordance with the provision of the Classification Act of 1923, as amended, and, under that act, specific statutory authority is required for the establishment of any position in a grade higher or at a salary higher than that of the position occupied by the Solicitor of the Department of Agriculture. In view of these circumstances the proviso becomes superfluous.



Other minor changes have been made so that the language of the item will be in conformity with the uniform language relating to transfers to other staff offices, as explained on page 18.

#### WORK UNDER THIS APPROPRIATION

**Objective:** The Office of the Solicitor is charged with the performance of the legal work of the Department. In brief, its duties consist of advising the Secretary and other administrative officials on legal problems in connection with all phases of their duties, pursuant to and in compliance with a statute providing that "the legal work of the Department of Agriculture shall be performed under the supervision and direction of the Solicitor" (5 U.S.C. 518).

**Significance:** The Department of Agriculture has been made responsible by Congress for the administration and enforcement of more than 60 major statutes, including numerous regulatory laws. Many and varied legal problems arise in the conduct of the activities of the Department, and these problems make it necessary that the administrative officers of the Department have legal advice and assistance. The proper disposition of these various matters requires the consideration and application of practically all branches of the law.

**Plan and progress of work:** The Solicitor and the attorneys of his office advise the Secretary and all other administrative officials on legal problems arising in connection with activities of the Department. They assist in the preparation of proposed legislative bills, administrative rules and regulations, orders, and proclamations. They provide the Secretary and other officials of the Department with legal opinions relative to the application of statutes, Executive orders, and administrative rules and regulations.

The Solicitor's Office also takes part in drafting, examining, and construing contracts, deeds, mortgages, leases, and other legal documents. It approves the organization of cooperative associations, soil conservation districts, and similar instrumentalities, and assists in determining their eligibility for participation in Department programs.

Other activities of the Office include the examination of evidence to determine whether there have been violations of acts administered by the Department. In proper cases, the Solicitor recommends prosecution to the Attorney General. Pleadings and briefs in civil and criminal cases involving the Department and laws administered by it are prepared by the Office, which cooperates with the Department of Justice in handling such litigation in the lower and appellate courts.

The Solicitor's Office represents the Department as counsel at hearings before the Secretary. The Office handles contacts on legal matters with other State and Federal governmental agencies. It conducts administrative hearings in reparation and similar proceedings, and issues tentative findings, conclusions, and orders with respect thereto, under the various acts administered by the Department.





The Office of the Solicitor also prosecutes, for employees of the Department, applications for patents on inventions which are to be used in departmental work. It examines the titles to lands authorized for purchase by the Department or on which loans may be made by the Department. The Office considers and recommends the appropriate disposition of claims for damage to property of the United States in the custody of the Department and of claims against the Government for damage arising from operations of the Department.



OFFICE OF INFORMATION

(a) SALARIES AND EXPENSES

|   |                |
|---|----------------|
| Appropriation Act, 1942, plus \$2620 supplemental for within-grade promotions ..... | \$347,503      |
| Transfers and allotments, 1942, as shown in Project schedules .....                 | <u>289,696</u> |
| Total available, 1942 .....   | <u>637,199</u> |

Budget estimate, 1943:

|  |                |
|--|----------------|
| Direct appropriation .....                   | 350,407        |
| Transfers as shown in Budget schedules ..... | <u>189,691</u> |
| Total available, Budget estimate, 1943 ..... | <u>540,098</u> |

Change from 1942:

|  |                 |
|--|-----------------|
| Net reduction in total working funds .....           | -100,005        |
| Additional funds for administrative promotions ..... | <u>12,904</u>   |
| Net decrease in total available .....                | <u>- 87,101</u> |

PROJECT STATEMENT

| Projects   | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|----------|---------------------|---------------------|-------------------------|
| 1. General Administration of Office of Information and of informational work ..... | \$21,275 | \$65,518            | \$32,048            | - \$33,470 (1)          |
| 2. Business service, including mail and files .....                                | 31,342   | 32,536              | 32,536              | ---                     |
| 3. Publications preparation and control .....                                      | 146,455  | 155,824             | 146,975             | - 8,849 (2)             |
| 4. Distribution of agricultural information directly to the public .....           | 66,290   | 67,335              | 67,335              | ---                     |
| 5. Preparation and distribution of agricultural information to the press .....     | 50,414   | 56,655              | 55,155              | - 1,500 (3)             |
| 6. Preparation and distribution of agricultural information by radio .....         | 35,226   | 35,125              | 35,125              | ---                     |
| 7. Addressing, duplicating and mailing service for the Department .....            | 100,339  | 121,586             | 65,400              | - 56,186 (4)            |

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OF GREAT BRITAIN AND IRELAND  
VOLUME LXXV. PART I. 1905.

PROJECT STATEMENT - Continued

| Projects  | 1941    | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|---------|---------------------|---------------------|-------------------------|
| 8. Field information service  | \$ 548  | \$100,000           | \$100,000           | ---                     |
| 9. Net cost of within-grade<br>promotions .....   |         | 2,620               | 5,524               | + \$ 2,904              |
| Estimated savings and un-<br>obligated balance .....  | 2,993   |                     |                     |                         |
| Total .....   | 454,882 | 637,199             | 540,098             | - \$7,101               |
| Deduct allotments and transfers:  |         |                     |                     |                         |
| Loans, grants, and rural re-<br>habilitation .....  | 50,300  | 74,071              | 50,888              | - 23,183                |
| Exportation and domestic con-<br>sumption of agricultural<br>commodities .....              | 13,500  | 41,145              | 26,058              | - 15,087                |
| Conservation and use of agri-<br>cultural land resources ....                               | 17,100  | 69,965              | 61,960              | - 8,005                 |
| Land utilization and retire-<br>ment of submarginal land ...                                | 2,800   | 2,800               | 1,800               | - 1,000                 |
| Conservation and use of agri-<br>cultural land resources (re-<br>gional laboratories) ..... |         | 5,000               |                     | - 5,000                 |
| Flood control .....   | 2,999   | 2,000               | 1,000               | - 1,000                 |
| Salaries and expenses, Agricul-<br>tural Adjustment Adminis-<br>tration .....               |         | 32,500              |                     | - 32,500                |
| Salaries and expenses, Office<br>of Agricultural Defense Re-<br>lations .....               |         | 8,000               |                     | - 8,000                 |
| Salaries and expenses, Soil<br>Conservation Service .....                                   |         | 10,000              | 8,130               | - 1,870                 |
| Federal Crop Insurance Act ...  | 4,800   | 9,800               | 15,042              | + 5,242                 |
| Sugar Act .....   | 7,500   | 13,415              | 3,471               | - 9,944                 |
| Salaries and expenses, Rural<br>Electrification .....                                       | 5,000   | 10,000              | 10,163              | + 163                   |
| Administrative expenses, Com-<br>modity Credit Corporation ..                               | 6,000   | 11,000              | 11,179              | + 179                   |
| Total, direct appropriation ..  | 344,883 | 347,503             | 350,407             | + 2,904                 |

INCREASES OR DECREASES

The net decrease of \$97,101 in the total funds available under this item consists of an increase of \$2,904 for within-grade promotions and a decrease of \$100,005 as follows:





(1) A decrease of \$33,470 for "General administration of Office of Information and of informational work of the Department."

(a) A decrease of \$27,500 due to the elimination of a non-recurring item provided in 1942 for financing the printing of posters and other informational material to support the production expansion program of the Agricultural Adjustment Administration to emphasize the need for increased production of needed foods for defense.

(b) An increase of \$2,030, to finance the salaries during 1943 of two employees who were officially transferred to this Office during fiscal year 1942. Previously, the two employees were detailed to the Office of Information from the Agricultural Adjustment Administration.

(c) A decrease of \$8,000 for salaries and incidental expenses of a writer and clerk-stenographer engaged in information liaison work with the Office of Agricultural Defense Relations. No financial arrangements have been made for continuing this work in fiscal year 1943 because of the difficulty of anticipating needs in the current war situation.

(2) A decrease of \$8,849 for "Publications preparation and control."

(a) A decrease of \$1,860 due to the elimination of a CAF-4 Editorial Clerk position in the Editorial Section.

(b) A decrease of \$2,100 due to the elimination of an SP-6 Senior Illustrator position in the Illustrations Section.

(c) A decrease of \$4,889 due to the elimination of three CAF-3 Assistant Photographer positions in the Photographic Section. These positions have been financed from funds previously allotted to this office by the various newer agencies. The employees filling these positions have been engaged in performing work for the agencies financing the salaries.

(3) A decrease of \$1,500 for "Preparation and distribution of agricultural information to the press."

(a) A decrease of \$1,500 for miscellaneous expenses of the Press Service, such as expenditures for paper and other office supplies and materials.

(4) A decrease of \$56,186 for "Addressing, duplicating, and mailing service for the Department."

(a) A decrease of \$50,856, previously used to finance the salaries of 37 employees in this section who are engaged in processing duplicated materials for agencies which have in the past financed the salaries by allotment of funds to this Office.

THE HISTORY OF THE  
REPUBLIC OF THE UNITED STATES  
OF AMERICA

By  
J. H. H. H.  
1877

The history of the Republic of the United States of America is a story of the growth of a great nation from a small colony of English settlers. The first settlers came to the New World in 1492, and the first English colony was founded in 1607. The colonies grew and developed, and in 1776 they declared their independence from Great Britain. The new nation was born, and it has since grown to be one of the most powerful and influential countries in the world. The history of the United States is a story of the struggle for freedom and the pursuit of the American dream. It is a story of the triumph of the human spirit over adversity and the power of unity. The United States has been a beacon of hope and a source of inspiration for people all over the world. Its history is a testament to the power of the American people and the values they hold dear. The United States is a country of many faces, many voices, and many dreams. It is a country that has the courage to stand up for its principles and the wisdom to learn from its mistakes. The history of the United States is a story that will continue to be written for many years to come. It is a story that is full of hope and possibility, and it is a story that we can all be proud of.

(b) A decrease of \$5,330 which was allotted in the fiscal year 1942 to finance the cost of maintaining and replacing duplicating equipment used in producing materials for the newer agencies of the Department.

#### CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item, as follows (new language underscored, deleted matter in brackets):

\* \* \* and other expenses not otherwise provided for, [\$344,883]  
\$350,407, together with such amounts from other appropriations  
or authorizations as are provided in the schedules in the  
Budget for the fiscal year 1943 for such expenses, which  
several amounts or portions thereof, as may be determined by  
the Secretary, not exceeding a total of \$189,691, shall be  
transferred to and made a part of this appropriation, of which  
total appropriation not to exceed [\$327,062] \$432,454 may be  
used for personal services in the District of Columbia.

This is in accordance with the uniform language changes of staff offices, relating to transfers, as explained in page 18 above.

#### WORK UNDER THIS APPROPRIATION

Objective: To supervise and correlate the informational work of the Department of Agriculture.

Problem: To direct the information program of the Department so as to place the most useful agricultural facts in the hands of farmers and others in practical form; also to convey the needs of farmers to the Secretary, his staff, technicians and scientists of the Department so that programs may be focused on the most critical agricultural problems, at the present time, for instance, on the expansion of food production to help win the war.

Significance: Most of the research, regulatory, or action programs carried on by the Department cannot be of the greatest economic or social significance to farmers and the Nation generally unless their purposes and the methods by which they are carried on are understood. A greater national benefit is gained when more citizens understand the Department's work and use the knowledge which it gathers and sends out, or take part in the programs which Congress directs the Department to operate.

As the Department reports to farmers and the public on the progress of action programs and disseminates practical information on the results of research to help meet needs of the Nation for food and fibre, farmers and the public are acquiring a better understanding of what to do to increase the efficiency of their operations. Such an understanding enables them to plan more effectively as individuals and in groups for use of scientific and economic knowledge, and of Government action programs to produce needed commodities and to achieve greater stability in resources, and income.

1. The first step is to identify the problem. In this case, the problem is that the company is not meeting its sales targets.



General plan: In Washington, D. C., to give policy direction to and be responsible for the correlation of the press, radio and publications work of the Department through the employment of existing machinery authorities centered in the Office of Information; in the field, to utilize the new Field Information Service of this Office to keep the Secretary of Agriculture informed on the total informational operation of the Department in the field and at his direction to carry out with the assistance of bureau information personnel specific unified information programs.

Progress and current programs: Progress has been made in coordinating information activities among the action agencies, in educating Department personnel, and by correlating subject matter for reports issued through publications, press and the radio. Considerable emphasis is being placed now on coordination of field information and the institution of information programs reporting the role of agriculture and assisting in solidifying its activities in the nation's war program. This work has been supplemented during the current year by the establishment of seven small field offices located in each of seven regions. The Field Information Service is responsible for keeping the Director of Information and the Secretary of Agriculture informed on the total information operation of the Department in the field and, in cooperation with the field information officers of the Department's agencies and of the State Agricultural Extension Services, for arranging for the preparation and distribution of information materials reporting the services carried on by groups of Departmental agencies. The aim will be to enable citizens to make most effective use of combinations of Departmental services.

Improved coordination of work in the Editorial Section and cooperation with the bureau editors is apparent in the quality of manuscripts received for publication. Written communications and personal conferences between the bureau editors and authors and the Office of Information editorial staff have encouraged better workmanship on Department publications. Statistical editing in particular has improved measurably, primarily through the efforts of specialized personnel highly trained in this field.

Great promise is being held for improvement in printing procurement and in the planning of Department publications as a result of a reorganization in work and the filling of vacancies with personnel especially qualified to enable the printing section to effect procedure improvements.

The extension of Department's activities during the past year has brought it in touch with larger numbers and new groups of the population with resulting increased demand for information. In particular, the international situation the past year has increased the demand for information relating to agricultural, economic, and social conditions. The Distribution Section is receiving an ever-expanding number of inquiries about the possible post-war conditions. Com-



paratively fewer requests are received now for specific publications and bulletins. A larger percentage of inquiries require study and the exercise of good judgment in selecting printed information to accurately furnish the information desired.

The Press Service has given increased attention to news releases interpreting world events in terms of what they mean to American farmers. Agriculture's part in the war effort has been stimulated through the coordination of information reported in releases. The news photography service centered in the Press Service has become more and more effective for presenting useful information on Department activities in the various research fields.

Illustrative of the success of a new Radio Service endeavor was the attendance of 256 extension workers in agriculture and home economics at 10 radio schools held under the direction of the Radio Service, in 5 different States. More live-at-home information has been made available to small farmers and other low-income groups through material provided to radio stations. Farmers generally were provided information through radio stations to enable them to adjust promptly their activities to the program for increased production of certain foods needed for national defense and for aid to Great Britain and others resisting aggression.

#### (b) PRINTING AND BINDING

|                               |                  |
|-------------------------------|------------------|
| Appropriation Act, 1942 ..... | \$1,550,111      |
| Transfers, as shown in Budget |                  |
| schedules, 1942 .....         | <u>600,000</u>   |
| Total available, 1942 .....   | <u>2,150,111</u> |
| Budget estimate, 1943:        |                  |
| Direct appropriation .....    | 1,500,000        |
| Transfers as shown in Budget  |                  |
| schedules .....               | <u>550,000</u>   |
| Total available, Budget       |                  |
| estimate, 1943 .....          | <u>2,050,000</u> |
| Net decrease .....            | <u>100,111</u>   |

#### PROJECT STATEMENT

| Projects   | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Decrease      |
|--|-----------|---------------------|---------------------|---------------|
| Job work and binding, expenditures for printing: |           |                     |                     |               |
| (a) Binding .....                                | \$31,712  | \$30,000            | \$30,000            |               |
| (b) Emergency field printing                     | 7,363     | 8,500               | 8,500               |               |
| (c) Job work .....                               | 1,020,348 | 1,131,611           | 1,056,500           | - \$75,111(1) |
| (d) Letterheads .....                            | 33,188    | 35,000              | 35,000              |               |
| Total .....                                      | 1,092,611 | 1,205,111           | 1,130,000           | - 75,111      |





PROJECT STATEMENT (Continued)

| Projects  | 1941    | 1942<br>(estimated) | 1943<br>(estimated) | Decrease |
|---|---------|---------------------|---------------------|----------|
| 2. Reports, periodicals, and other regulatory, service, and administrative publications, expenditures for printing: |         |                     |                     |          |
| (a) Agriculture in the Americas .....   | \$4,176 | \$5,000             | \$5,000             | - -      |
| (b) Agricultural Situation..  | 15,397  | 15,000              | 15,000              | - -      |
| (c) Annual Reports .....  | 12,266  | 13,000              | 13,000              | - -      |
| (d) Briefly Speaking (AAA)..  | 1,821   | 1,000               | 1,000               | - -      |
| (e) Congressional Documents..   | 2,969   | 5,000               | 5,000               | - -      |
| (f) Consumers' Guide .....  | 14,837  | 5,250               | 5,250               | - -      |
| (g) Crops and Markets .....   | 14,031  | 15,000              | 15,000              | - -      |
| (h) Experiment Station Record .....   | 22,136  | 23,000              | 23,000              | - -      |
| (i) Extension Service Review  | 8,500   | 8,500               | 8,500               | - -      |
| (j) Farmers' Bulletin Lists..   | 4,330   | 5,000               | 5,000               | - -      |
| (k) Fire Control Notes .....  | 1,997   | 2,000               | 2,000               | - -      |
| (l) Foreign Agriculture .....   | 1,366   | 3,000               | 3,000               | - -      |
| (m) Forest Folders .....  | 27,519  | 27,550              | 27,550              | - -      |
| (n) Indexes .....   | 1,385   | 1,000               | 1,000               | - -      |
| (o) Inventories of Seeds and Plants Imported .....  | 1,840   | 3,000               | 3,000               | - -      |
| (p) Instructions and Procedures (AAA) .....   | 32,718  | 32,200              | 32,200              | - -      |
| (q) Journal of Agricultural Research .....  | 6,150   | 6,000               | 6,000               | - -      |
| (r) Land Policy Review .....  | 5,825   | 7,500               | 7,500               | - -      |
| (s) Monthly List of Publications .....  | 1,455   | 1,500               | 1,500               | - -      |
| (t) RE News .....   | 15,313  | 22,000              | 22,000              | - -      |
| (u) REA Instructions and Information .....  | 2,000   | 3,000               | 3,000               | - -      |
| (v) Service and Regulatory Announcements .....  | 10,967  | 10,000              | 10,000              | - -      |
| (w) Soil Conservation Magazine .....  | 8,427   | 8,500               | 8,500               | - -      |
| (x) Unnumbered Publications..   | 88,069  | 90,000              | 90,000              | - -      |
| (y) Yearbook .....  | 25,000  | 25,000              | 25,000              | - -      |
| (z) Yearbook Statistical Report .....   | 19,220  | 17,000              | 17,000              | - -      |
| Total .....   | 349,714 | 355,000             | 355,000             | - -      |



## PROJECT STATEMENT - Continued

| Projects  | 1941    | 1942<br>(estimated) | 1943<br>(estimated) | Decrease     |
|---|---------|---------------------|---------------------|--------------|
| <b>3. Research and technical bulletins, expenditures for printing:</b>                  |         |                     |                     |              |
| (a) AAA Statistical bulletins .....   | \$ 931  | \$1,000             | \$1,000             | - -          |
| (b) Circulars .....   | 17,079  | 16,500              | 16,500              | - -          |
| (c) Erosion Reports .....   | 7,486   | 5,000               | 5,000               | - -          |
| (d) Experiment Station Bulletins and Reports ...  | 2,496   | 3,500               | 3,500               | - -          |
| (e) Hydrologic Bulletins...   | 9,642   | 24,000              | 24,000              | - -          |
| (f) Journal of Agricultural Research Separates .....                                    | 17,276  | 15,000              | 15,000              | - -          |
| (g) Reprints and revisions (general) .....  | 6,059   | 4,000               | 4,000               | - -          |
| (h) Reprints of Outside Articles .....  | 2,204   | 2,500               | 2,500               | - -          |
| (i) Soil Surveys .....  | 81,849  | 70,000              | 70,000              | - -          |
| (j) Statistical Bulletins..   | 1,317   | 3,500               | 3,500               | - -          |
| (k) Technical Bulletins ...   | 22,985  | 25,000              | 25,000              | - -          |
| Total .....   | 169,324 | 170,000             | 170,000             | - -          |
| <b>4. Farmers' bulletins and other popular publications, expenditures for printing:</b> |         |                     |                     |              |
| (a) Agricultural Adjustment Administration bulletins.                                   | 31,746  | 46,500              | 46,500              | - -          |
| (b) Farm Security Administration pamphlets .....  | -       | 2,000               | 2,000               | - -          |
| (c) Federal Crop Insurance Corporation bulletins ...                                    | 19,974  | 15,000              | 15,000              | - -          |
| (d) Farmers' Bulletins (new)  | 34,373  | 32,000              | 32,000              | - -          |
| (e) Farmers' Bulletins (reprints) .....   | 161,009 | 165,000             | 165,000             | - -          |
| (f) Leaflets (new) .....  | 2,597   | 5,000               | 5,000               | - -          |
| (g) Leaflets (reprints) ...   | 12,654  | 15,000              | 15,000              | - -          |
| (h) Miscellaneous Publications .....  | 94,637  | 87,000              | 62,000              | -\$25,000(2) |
| (i) Posters .....   | 9,235   | 8,000               | 8,000               | - -          |
| (j) Rural Electrification Administration Popular Publications .....                     | 21,407  | 16,000              | 16,000              | - -          |
| (k) RE Separates .....  | 17,157  | 16,000              | 16,000              | - -          |
| (l) Statistical Separates .   | 1,314   | 500                 | 500                 | - -          |
| (m) Yearbook Separates ....   | 13,644  | 12,000              | 12,000              | - -          |
| Total .....   | 419,747 | 420,000             | 395,000             | - 25,000     |



## PROJECT STATEMENT - Continued

| Projects   | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Decrease  |
|--|-----------|---------------------|---------------------|-----------|
| Total obligations, printing and binding .....                          | 2,031,396 | 2,150,111           | 2,050,000           | - 100,111 |
| Received by transfer from:   |           |                     |                     |           |
| Conservation and Use of Agricultural Land Resources .....              | -150,000  | -150,000            | -175,000            | + 25,000  |
| Exportation and Domestic Consumption of Agricultural Commodities ..... | -270,000  | -300,000            | -225,000            | - 75,000  |
| Parity Payments .....  | -150,000  | -150,000            | -150,000            |           |
| Estimated savings and unobligated balance .....                        | 88,715    | - -                 | - -                 | - -       |
| Total estimate or appropriation ..                                     | 1,550,111 | 1,550,111           | 1,500,000           | - 50,111  |

## DECREASES

The decrease of \$100,111 consists of:

(1) A decrease of \$75,111 under the project "Job work and binding, expenditures for printing." It is estimated that the "printed form" requirements for administering the "Exportation and Domestic Consumption of Agricultural Commodities" program in 1943 will be "225,000 as compared with an estimated expenditure of \$300,000 in 1942. The marketing quota activities of the Department, however, it is estimated, will require an additional \$25,000 for printed forms for 1943 necessary to conduct referenda and secure subsequent marketing quota agreements on wheat, cotton, corn, rice tobacco, and possibly peanuts and potatoes. The remaining reduction of \$25,111 will be effected in expenditures for printed forms ordinarily required by other agencies of the Department.

(2) A decrease of \$25,000 under the project "Farmers' bulletins and other popular publications, expenditures for printing." This will be effected by reducing the number of issues and copies of "Miscellaneous Publications" ordinarily printed to acquaint specialized groups of some of the more general agricultural problems and their recommended solutions.

## WORK UNDER THIS APPROPRIATION

Objective: To procure annually the wide variety of forms, schedules, certificates indispensable to the operation of the programs for which the Department is responsible; to keep Department staff workers, collaborators in Washington and in the field advised of agricultural program developments; to make known, particularly to scientists, the results of research conducted in Department laboratories and field experiment stations; to make available to farmers and the general public information of practical value to millions of citizens who need the information to put proven agricultural methods into practice and in times like these to gear their operations with the established national production goals which must be reached to insure the success of the Food-for-Freedom program.





Problem: To make the best possible use of the funds available so that not only will the bureaus and agencies requirements be met for "job printing" and forms, but also so that the publishing of the results of agricultural research and other activities will be kept as current as possible.

Significance: The Department's programs, especially those dependent to a high degree on widespread farmer participation for success, require annually a large number of operating forms. The fundamental purpose of the Farmers' Bulletins and other non-technical publications is to provide to farmers usable information of assistance in improving their economic status. The instructional reports, administrative periodicals, and the research and technical publications meet the obvious intent.

General plan: To centralize in the Office of Information the responsibility for making the best possible use of printing funds, to procure promptly and in sufficient quantities from the Government Printing Office or from commercial sources, when necessary, forms indispensable to program and day-to-day work; by so controlling and planning the printing expenditures make it possible that all types of printing requirements are met to a maximum extent and economies effected by consolidating printing orders and by adopting measures resulting in paper and composition savings.

Progress and current programs: Between fiscal years 1940 and 1941 little shift was noticeable in the type or amount of printed material financed from the Department's Printing and Binding Appropriation. Approximately the same amount of money was expended during the two years for (1) Job Work and Binding. (2) Reports, Periodicals, and other Regulatory, Service and Administrative Publications, and for (3) Research and Technical Bulletins. A slight increase was shown in expenditures for Farmers' Bulletins and other Popular Publications in the past fiscal year.

The Rural Electrification News, a periodical, was financed for the first time from this appropriation; another periodical, Agriculture in the Americas, was first issued in the 1941 fiscal year.

In 1941, 29 new Farmers' Bulletins were printed, 12 Leaflets, 44 Miscellaneous Publications, 46 Circulars, 57 Technical Bulletins, 32 Unnumbered Publications.

Increased attention is being given to make the Department's publications more serviceable in keeping with modern trends and demands. A greater number of publications were and will be printed which deal with the over-all activities of the Department. Better presentation of information is expected as a result of a reorganization of the work of the printing section to promote efficiency in types and use of printed matter and greater speed in delivery of printed materials.

Description of printing items:

Project 2. Reports, periodicals, and other regulatory, service and administrative publications.



- (a) Agricultural Situation: To inform key groups of the economic situation with respect to agriculture. It includes statistics on production, movement, consumption, prices and purchasing power of commodities and is sent monthly to crop reporters, economists, technical workers, extension agents and officials of the Agricultural Adjustment Administration.
- (b) Agriculture in the Americas: Promotes a better understanding of the need for inter-American agricultural cooperation; reviews significant happenings in this field and serves as a forum for discussion of agricultural problems in the Americas; distributed monthly to Department workers, libraries, cooperating federal and state agencies, Ministries of Agriculture in Latin American countries and Latin American Diplomatic representatives, Latin American Universities, and representatives of key exporters, trade journals, etc.
- (c) Annual Reports: Many annual reports are required by law for the purpose of making a permanent record of the work performed during the preceding fiscal year.
- (d) Briefly Speaking: (AAA). This publication is used to place pertinent information in the hands of AAA committeemen and others cooperating in the Agricultural Adjustment Administration programs. It is printed when material of sufficient importance has accumulated to warrant publication.
- (e) Congressional Documents: Copies of Congressional bills, resolutions, reports, directories, Congressional Records are obtained only for use by Department personnel.
- (f) Consumers' Guide: Circulated to key groups and individuals who serve as focal points in disseminating further information of value to consumers. A small part of the cost of the Guide is financed under this appropriation; the bulk of it is financed from AAA funds.
- (g) Crops and Markets: Statistical information on crop and livestock estimates, market information, reports on supplies, stocks, commercial movements, etc.
- (h) Experiment Station Record: Designed to keep research workers in agriculture and home economics informed of current scientific developments, with particular reference to the research reports from State Experiment Stations.
- (i) Extension Service Review: Serves to keep extension agents familiar with current developments in the Department and the various state colleges; issued monthly.
- (j) Farmers' Bulletin lists: Furnished to Members of Congress, extension agents, and farmers to show current available publications.



(k) Fire Control Notes: Issued bi-monthly to inform members of the staff and cooperators of the Forest Service on developments in techniques of forest-fire control.

(l) Foreign Agriculture: Highlights in the current world agricultural situation, including production, trade and demand indices; analyses of agricultural imports and exports and current policies of foreign governments with respect to agriculture.

(m) Forest Folders: Directed to the millions of visitors to national forests to encourage careful and proper use of these areas as a safeguard against forest fires.

(n) Inventory of seeds and plants imported: A record of new and little-known seeds and plants imported from abroad for use of the Department, State experiment stations and other experimenters.

(o) Indexes: Invaluable because of the large number and numerous series of publications printed.

(p) Instructions and procedures: Consists chiefly of letters of an administrative nature, instructions, and procedures for Agricultural Adjustment Administration committeemen to follow in administering the Department's conservation and adjustment programs.

(q) Journal of Agricultural Research: Technical reports of basic research conducted in the Department and State experiment stations; distribution only to selected libraries.

(r) Land Policy Review: Reports significant results of research and study in fundamental agricultural problems and supplies information helpful in the organization of county land-use planning work.

(s) Monthly List of Publications: Announces the availability of new and revised publications.

(t) RE News: Issued monthly to provide information on the progress and development of the rural electrification program to help insure repayment of Government loans.

(u) REA Instructions and Information: Directions and instructions of an administrative nature aimed at REA cooperatives.

(v) Service and Regulatory Announcements: Orders and notices of a mandatory character to effectuate regulatory programs.

(w) Soil Conservation Magazine: Contains administrative information to members of the field staff of the Soil Conservation Service and provides specialists of the Service and cooperating agencies with current technical and scientific knowledge in soil conservation and related fields.





(x) Unnumbered Publications: Those of specialized character, for administrative use, restricted distribution, or of temporary usefulness, though each is important in its own field. Three examples are the following: "The Land We Defend", "Changing Technology and Employment in Agriculture", and "Achieving a Balanced Agriculture."

(y) Yearbook of Agriculture: An annual publication required by law presenting new developments in agriculture; provides a permanent chronological record of agricultural history year by year.

(z) Statistical Report: Previously included in the Yearbook of Agriculture, now published separately for purposes of economy.

Project 3. Research and technical bulletins:

(a) AAA Statistical Bulletins: Miscellaneous statistical bulletins issued by the Agricultural Adjustment Administration. Some examples are "California Fruit and Nut Acreage," and "Statistics on Receipts and Distribution of Sugar in the United States."

(b) Circulars: Semitechnical reports on current results of the manifold research programs of the Department. Some examples are "The Imperial Strains of Lettuce," and "Bacterial Wilt of Alfalfa and Its Control."

(c) Erosion Reports: Studies of soil erosion and land use in selected areas as a means of obtaining an accurate inventory of physical land conditions; distribution limited to Federal and State agencies within the surveyed areas and to libraries.

(d) Experiment Station bulletins and reports: This series is used to report the results of work done at the insular research stations, including the annual reports of the insular stations.

(e) Journal of Agricultural Research separates: Since the bound copies of the Journal itself are sent to a very restricted list, separates are printed for scientists who request technical information on the specific subject covered.

(f) Hydrologic Data: These studies determine the effect of agricultural land use practices on the conservation of soil and water and on floods; data needed for economically designing the erosion, flood-control and hydraulic structures used in the soil and water conservation program.

(g) Reprints and revisions: Consists of reprints of older publications such as Department Circulars and Miscellaneous Circulars containing scientific information of current value.

(h) Reprints of Outside Articles: The purchase of small numbers of reprints of current technical material prepared by Department scientists but printed in nongovernmental publications.



State of Illinois  
County of Cook  
City of Chicago

Know all men by these presents, that I, the undersigned, for and in behalf of the State of Illinois, do hereby certify that the within and foregoing is a true and correct copy of the original as the same appears from the records of the State of Illinois.

Witness my hand and the seal of the State of Illinois, at the City of Springfield, this 1st day of January, 1901.

John A. Logan, Governor of the State of Illinois.

Notary Public for the State of Illinois.

Subscribed and sworn to before me this 1st day of January, 1901, at the City of Chicago, County of Cook, State of Illinois.

My commission expires this 1st day of January, 1901.

(i) Soil Surveys: Survey maps and textual information used in connection with the coordination of broad land-use programs of the Department and cooperating agencies; especially useful in program planning by the extension service, state planning boards, colleges of agriculture and experiment stations, and Federal and private credit agencies.

(j) Statistical Bulletins: All statistical publications including those on futures trading. An example is "Corn Futures 1936-1939."

(k) Technical Bulletins: Form a permanent record of research results for Department scientists, cooperating institutions and scientists of the experiment stations. Valuable research results are published in this series to enable the public to obtain the information in a usable form.

Project 4: Farmers' bulletins and other popular publications:

(a) Agricultural Adjustment Administration Bulletins: Used to disseminate essential information to individual farmers eligible to participate in the farm programs; also designed to inform the general public on the work of the program and its relationship to other phases of our national life.

(b) Farm Security Administration pamphlets: Question and answer type of leaflets explaining terms of loans and qualifications of borrowers.

(c) Crop insurance bulletins: Distributed through State and county farmer-committees to acquaint farmers with the general operation of the crop insurance program and explains how farmers may avail themselves of the benefits of the program.

(d,e,f,g) Farmers' Bulletins and Leaflets (New and reprints): The most popular and most widely distributed publications of the Department; contain practical information on many agricultural subjects. Four fifths of all Farmers' Bulletins are distributed by Members of Congress; furnished only upon request.

(h) Miscellaneous Publications: Those not of octavo size, or containing material of miscellaneous nature not suitable for the regular series, and often prepared for dissemination of information on specialized projects. Three examples are the following: "The Cotton-and-Tobacco South," "Legumes for Erosion Control and Wildlife," and "The School Lunch Program and Agriculture Surplus Disposal."

(i) Posters: For use in connection with special campaigns such as forest fire protection, the Food for Freedom campaign and others.

(j) Rural Electrification Administration Popular: Some examples of these are booklets on "Know your Co-op," "Electrical Feed Mixers," "Refrigerator Recipes," and "Table Cookery."



(k) RE News (Separates): Issued each month in larger quantities than the regular issues of the News; contains useful information to consumers of electricity on REA cooperative lines.

(l,m) Yearbook and Statistical Separates: Printed in small volume mainly for use in answering correspondence; consists of specialized articles and tables.

SUPPLEMENTAL FUNDS  
(Complete Bureau Statement)

Direct Allotment

| Projects  | Allotment,<br>1941 | Allotment,<br>1942 | Estimated<br>allotment,<br>1943 |
|---|--------------------|--------------------|---------------------------------|
| <u>Working fund, Agriculture, Information</u><br><u>(transfer from "Salaries, Office of the</u><br><u>Secretary of the Interior":</u> |                    |                    |                                 |
| For informational work for the Fish<br>and Wildlife Service:  |                    |                    |                                 |
| 1. Publications preparation and<br>control .....  | \$1,485            | \$1,060            | - -                             |
| 2. Addressing, duplicating, and<br>mailing service .....  | 2,515              | 2,940              | - -                             |
| Total, Supplemental funds .....   | 4,000              | 4,000              | - -                             |



LIBRARY

Appropriation Act, 1942, plus \$215 supplemental  
for within-grade promotions .....\$102,215  
Transferred in 1943 estimates from "United States  
Cotton Futures and United States Cotton Standards  
Acts, Agricultural Marketing Service" with cor-  
responding reduction in latter appropriation ..... +4,400  
Allotments, 1942, as shown in Budget schedules ..... +48,855  
Total available, 1942 ..... 155,470

## Budget estimate, 1943:

Direct appropriation ..... 107,030  
Transfers as shown in budget schedules ..... +46,055  
Total available, Budget estimate, 1943 ..... 153,085

## Change from 1942:

Net reduction in working funds ..... -2,800  
Additional for administrative promotions ..... + 415  
Net decrease in total available ..... -2,385

PROJECT STATEMENT

| Projects  | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|----------|---------------------|---------------------|-------------------------|
| 1. General administration and<br>business service .....   | \$25,865 | \$28,898            | \$28,898            | - -                     |
| 2. Acquisition of publications by<br>purchase, gift and exchange and<br>preparation of material for use . | 78,235   | 83,297              | 80,497              | -\$2,800(1              |
| 3. Bibliographical services .....   | 7,400    | 16,555              | 16,555              | - -                     |
| 4. Circulation and reference ser-<br>vices .....  | 16,408   | 22,705              | 22,705              | - -                     |
| 5. Library extension services ....  | --       | 3,800               | 3,800               | - -                     |
| 6. Net cost of within-grade<br>salary advancements .....  | --       | 215                 | 630                 | +415                    |
| Unobligated balance .....   | 762      | --                  | --                  | - -                     |
| Total available .....   | 128,670  | 155,470             | 153,085             | -2,385                  |
| Deduct allotments and transfers:  |          |                     |                     |                         |
| Salaries and expenses, Bureau of<br>Agricultural Economics .....  | 10,980   | 10,980              | 10,980              | - -                     |
| Conservation and use of agricul-<br>tural land resources .....  | 1,500    | 10,500              | 12,320              | +1,820                  |
| Salaries and expenses, Agricul-<br>tural Adjustment Administration  | 2,100    | 2,000               | --                  | -2,000                  |
| Loans, grants, and rural rehabili-<br>tation .....  | 1,833    | 8,335               | 7,335               | -1,000                  |
| Federal Crop Insurance Act .....  | 210      | 840                 | 840                 | - -                     |
| Enforcement of Commodity Exchange<br>Act .....  | --       | 560                 | 560                 | - -                     |
| Salaries and expenses, Rural<br>Electrification .....   | 1,150    | 4,600               | 4,600               | - -                     |





| Projects   | 1941    | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|---------|---------------------|---------------------|-------------------------|
| Farm tenancy .....   | - -     | \$300               | - -                 | -\$300                  |
| Administrative expenses, Commodity<br>Credit Corporation .....   | - -     | 750                 | \$750               | - -                     |
| Land utilization and retirement of<br>sub-marginal land .....  | - -     | 500                 | - -                 | -500                    |
| Parity payments .....  | 3,080   | 3,820               | 1,500               | -2,320                  |
| Exportation and domestic consump-<br>tion of agricultural commodities  | 1,417   | 5,670               | 7,170               | +1,500                  |
| Total available .....  | 106,400 | 106,615             | 107,030             | +415                    |
| Deduct transfer in estimates from<br>"United States Cotton Futures<br>and United States Cotton Standards<br>Acts, Agricultural Marketing Ser-<br>vice" ..... | 4,400   | 4,400               | - -                 | -4,400                  |
| Total, direct appropriation ..   | 102,000 | 102,215             | 107,030             | +4,815                  |

The decrease of \$2,385 in the total funds under this item consist of an increase of \$415 for within-grade promotions and a decrease of \$2,800 as follows:

(1) A decrease of \$2,800 under the project "Acquisition of publications by purchase, gift, and exchange, and preparation of material for binding", due to the elimination of this amount provided by transfer of funds in 1942 for the purchase of law books for the Office of the Solicitor.

#### CHANGE IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed in brackets):

Salaries and expenses: For purchase and exchange of [books of] reference, lawbooks, technical and scientific books, periodicals, and for expenses incurred in completing imperfect series; not to exceed \$1,200 for newspapers; for dues, when authorized by the Secretary of Agriculture, for library membership in societies or associations which issue publications to members only or at a price to members lower than to subscribers who are not members; for salaries in the city of Washington and elsewhere; for official travel expenses, and for library fixtures, library cards, supplies, and for all other necessary expenses, \$107,030, together with such amounts from other appropriations or authorizations as are provided in the schedules in the Budget for the fiscal year 1943 for such salaries and expenses, which several amounts or portions thereof, as may be determined by the Secretary, not exceeding a total of \$46,055 shall be transferred to and made a part of this appropriation, of which [amount] total appropriation not to exceed [\$73,810] \$127,822 may be expended for personal services in the District of Columbia.

The changes provide (as in the case of certain other departmental staff and service offices) that funds previously allotted to the Library for services rendered to the agencies from which the transfers are made, will be transferred and become a part of the appropriation "Salaries and expenses, Library", in the amounts specified in the budget schedules, not exceeding \$46,055 for fiscal year 1943.



## WORK UNDER THIS APPROPRIATION

The value of the Library to the war effort is indicated by a steadily increasing stream of reference work for emergency agencies both within the Department and elsewhere throughout the Government.

The Library is a working tool in the development of agricultural research and administration. It serves other Governmental agencies, contributes to the literature needs of agricultural research in the land-grant colleges and experiment stations, aids the Library of Congress in catalog preparation and in agricultural reference work, and, in general, attempts to fulfill the obligation placed on the Secretary by the Act of 1862 to collect all agricultural literature and to make its contents available to the country as a whole.

The value of good library service is not restricted to the research program of the Department. Farmers and administrators of the action agencies apply the product of research; and the research man must know the farmers' problems and those of the action agencies if research is to be useful. The Library plays a very important part in this two-way stream of information between these groups, and the day-to-day service that the Library gives to those who are charged with the responsibility for carrying out policies and programs laid down by Congress is indispensable.

The Library of the Department is now recognized as one of the world's greatest collections in the field of agriculture. Its annual acquisition of basic materials is a permanent addition to the wealth of the Nation, and might well be considered a capital investment rather than a current expenditure.

Objective: To aid in formulation and execution of agricultural programs and to avoid duplication of research and costly mistakes, by bringing to bear on all research, administrative, and agricultural adjustment problems (most particularly, at present, in so far as they relate to current war efforts) the wealth of experience and judgment recorded in agricultural literature.

The problem and its significance: In order to fulfill the above objective, it is necessary to acquire, through purchase, gift, and exchange, the agricultural, scientific, technical and economic books and periodicals needed in the work of the Department; to make the contents of the Library readily available by classification, cataloging, indexing, and otherwise; to supervise and coordinate all of the library work of the Department in Washington and the field; to compile bibliographies, booklists, bulletins, indexes, and other bibliographical tools for the use of the Department staff and others, both in Washington and in the field; to procure copies of material, on film or otherwise, required to fill gaps in the collection; to provide translations of correspondence and articles from and into foreign languages; to extend to the field staff of the Department library services equal to those provided the Department workers in Washington; to provide library service requested by agricultural workers in the land-grant colleges and experiment stations; to coordinate field libraries; to establish regional library services on the Departmental level; and to serve as a liaison agent between all field staff and the library facilities in their localities as well as in Washington.

General plan: The "General Administration and Business Service" project represents the planning and overall administrative work of the Department library





system and the supervision of its component parts from the general administrative, bibliothecal and departmental points of view. The project "Acquisition of Publications by Purchase, Gift and Exchange, and Preparation of Material for Use" constitutes a combination of projects 2 and 3 in the budget for 1942, and reflects the reorganization of this work into one division for close coordination of all the technical processed work and the elimination of duplication of records, etc. The bibliographical work of the Department (project "Bibliographical Services") is its most intimate service to research. The Library receives some 6,000 serial publications representing proceedings of societies and associations in the field of agriculture, Governmental reports from other countries, etc., as well as more than 5,000 periodicals. Most of this material is not indexed in any form elsewhere and unless the Library indexes it, research workers have no way of using this great wealth of material. It is the function of this division to coordinate bibliographical work done throughout the Department library system so as to get maximum yield from every dollar expended for bibliographical service and thus from research. The project "Circulation and Reference Service" carries the responsibility for all reference work, including the manning of the reference room and the answering of thousands of requests for information, the charging and discharging of more than 70,000 volumes a year, and obtaining from the shelves and returning to them all books used in the reference service. Under the project "Library Extension Services", it is proposed ultimately to provide high-grade service and flow of information from the Department Library to all Department workers in the field through the establishment of branches of the Department Library at all field points at which major concentrations of the Department staff are located, and to provide high-grade reference and bibliographical service to the staff in the field. Approximately two-thirds of the staff of the Department is now in the field. It is essential that these people be provided with adequate library service if they are to perform their duties on a level of efficiency comparable to that attainable in Washington.

Progress and current programs: One of the most significant achievements of the past year was the establishment of Departmental branch libraries at Beltsville, Maryland, Upper Darby, Pennsylvania, Little Rock, Arkansas, and Lincoln, Nebraska, by consolidation of existent bureau branch libraries so as to provide more efficient library service than was possible before. It also resulted in extending library service to all Department staff at these points instead of just to the staff of the bureaus that had maintained their separate libraries. This was accomplished entirely by memoranda of understanding between the bureaus involved and the Department Library, and without additional funds transferred or appropriated to the Library. Reflected in the budget also is the consolidation of technical processes work for the Bureau of Agricultural Economics library, resulting in more economical operation of this work. It is anticipated that further consolidation of technical processes work will be undertaken for other bureau libraries in the future.

An example of the manner in which the Library is helping to meet emergency problems is a weekly publication abstracting all significant articles on agriculture's job in the war and postwar period. This publication helps to keep all parts of the Department informed of war activities of other parts of the Department and by surveying literature calls to the attention of the Department all problems which farmers are encountering in the present emergency.





The facilities of the Library have been used freely by defense agencies outside the Department as well as by those within the Department and numerous questions are received every month from the Army, Navy, Office of Production Management, Office of Emergency Management, and other defense agencies. In spite of the increased work load arising out of the defense effort, basic service has also increased as is shown in the following table:



Number of Items cataloged and Cards added to the Catalog

|   | <u>1936</u> | <u>1937</u> | <u>1938</u> | <u>1939</u> | <u>1940</u> | <u>1941</u> |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Items cataloged and classified ..               | 14,807      | 15,222      | 18,647      | 18,704      | 18,128      | 20,294      |
| New cards added to the library<br>catalog ..... | 21,701      | 24,021      | 23,944      | 20,297      | 25,828      | 29,838      |

Books and Periodicals loaned or filmed at the main Library

|                                       | <u>1936</u> | <u>1937</u> | <u>1938</u> | <u>1939</u> | <u>1940</u> | <u>1941</u> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Loans made or films<br>supplied ..... | 145,168     | 154,828     | 164,300     | 171,912     | 170,810     | 178,095     |

Periodicals and Serials

|   | <u>1936</u> | <u>1937</u> | <u>1938</u> | <u>1939</u> | <u>1940</u> | <u>1941</u> |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Number of different periodicals<br>currently received ..... | 4,670       | 4,811       | 4,993       | 5,027       | 5,154       | 5,275       |
| Number of serials currently<br>received .....               | *           | *           | 5,370       | 5,470       | 5,735       | 6,011       |
| Number of volumes bound .....                               | 5,206       | 4,966       | 3,707       | 4,154       | 4,101       | 4,413       |

\* Figures not available

Amounts obligated in 1940 and 1941 for purchase of publications  
and estimated obligations for 1942 and 1943

|  | <u>1940</u> | <u>1941</u> | <u>1942</u> | <u>1943</u> |
|--|-------------|-------------|-------------|-------------|
| Purchase of books and other<br>publications (except periodi-<br>cals and newspapers) ..... | \$16,079    | \$12,950    | \$12,915    | \$12,915    |
| Purchase of periodicals .....  | 11,100      | 11,000      | 11,000      | 11,000      |
| Purchase of newspapers .....   | 1,143       | 1,200       | 1,200       | 1,200       |



OFFICE OF EXPERIMENT STATIONS

(a) PAYMENTS TO STATES, HAWAII, ALASKA,  
AND PUERTO RICO FOR AGRICULTURAL EXPERIMENT STATIONS

|                               |                |
|-------------------------------|----------------|
| Appropriation Act, 1942 ..... | \$6,926,208    |
| Budget Estimates, 1943 .....  | 6,462,500      |
| Decrease .....                | <u>463,708</u> |

PROJECT STATEMENT

| Projects  | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Decrease       |
|---|-----------|---------------------|---------------------|----------------|
| 1. Hatch Act (March 2, 1887)                          | \$720,000 | \$720,000           | \$720,000           | --             |
| 2. Adams Act (March 16, 1906)                         | 720,000   | 720,000             | 720,000             | --             |
| 3. Purnell Act (February 24,<br>1925) .....           | 2,880,000 | 2,880,000           | 2,880,000           | --             |
| 4. Hawaii Station Act<br>(May 16, 1928) .....         | 67,500    | 67,500              | 67,500              | --             |
| 5. Alaska Station Act<br>(February 23, 1929) .....    | 15,000    | 15,000              | 15,000              | --             |
| 6. Alaska Station Act<br>(June 20, 1936) .....        | 10,000    | 10,000              | 10,000              | --             |
| 7. Puerto Rico Station Act<br>(March 4, 1931) .....   | 50,000    | 50,000              | 50,000              | --             |
| 8. Bankhead-Jones Act,<br>Title I, (June 29, 1935) .. | 2,400,000 | 2,463,708           | 2,000,000           | -\$463,708 (1) |
| Total appropriation .....                             | 6,862,500 | 6,926,208           | 6,462,500           | - 463,708      |

DECREASE

(1) The Budget estimate contemplates a decrease in 1943 of \$463,708 in the fund for payments to the States, Hawaii, Alaska, and Puerto Rico for research work at the State agricultural experiment stations.

CHANGE IN LANGUAGE

Appropriation: PAYMENTS TO STATES, HAWAII, ALASKA, AND PUERTO RICO FOR AGRICULTURAL EXPERIMENT STATIONS, Title I, Bankhead-Jones Act

The Budget estimates propose deletion of the following proviso under this appropriation:

Provided, That of this amount \$63,708 shall be allotted to States and Territories for which allotments under the Bankhead-Jones Act, title I, for the fiscal year 1942 are less than the allotment of the respective State or Territory in the fiscal





year 1941, each such State or Territory to receive a total allotment under the Bankhead-Jones Act, title I, in 1942 at least equal to the allotment for the respective State or Territory in 1941.

In 1942, 22 States and Hawaii, whose relative rural populations were lower as determined by the 1940 census, received the same allotments under this appropriation as in the fiscal year 1941 through an increase of \$63,708 in the appropriation and the foregoing proviso in the Agricultural Appropriation Act. In view of the total decrease of \$463,708 in the Budget Estimates for 1943 the proviso is also proposed for elimination. (See Table 1, which follows)

#### WORK UNDER THIS APPROPRIATION

General. The several appropriations under "Payments to States, etc." represent the Federal Government's support and encouragement to the State, Territorial, and Puerto Rican agricultural experiment stations which were established as departments of the land-grant colleges pursuant to the provisions of the Hatch Act of 1887.

The object and duty of the State agricultural experiment stations is to conduct researches and experiments along the lines authorized by the several Federal-grant fund acts and the complementary acts of the States on the many problems constantly encountered in the development of a permanent and sustaining agriculture and in the improvement of the economic and social welfare of the farm family.

The primary function and obligation of the State agricultural experiment stations is to meet the needs of the farmers of the several States through the study and solution of State and local problems. This function is expressed in the Hatch Act of 1887 and the Adams Act of 1906, which specify, in authorizing appropriations for these stations for agricultural research, that the investigations conducted should be with "due regard to the varying conditions and needs of the respective States and Territories."

In addition to their function of serving State and local needs, the research programs of the State stations, to be most effective, include participation in regional and national programs. Since the economic and social welfare of the rural population and the general consumer public of a State is definitely affected by and definitely related to the welfare of the population of other States, joint attack by a group of State stations is the most effective and often the only practical approach to problems of common interest.

The research programs of the State agricultural experiment stations and the United States Department of Agriculture are supplementary and interdependent. The Department of Agriculture, having primary responsibility to improve agriculture and the rural home for the whole country, approaches agricultural problems from the regional and national viewpoint, but without losing sight of the fact that the individual farm and farm family is the fundamental unit of American Agriculture. A large part of the research work of the State stations and the Department is conducted on an actively cooperative basis to



use all available resources to the best advantage. The State agricultural experiment stations, for example, look to the Department of Agriculture for leadership in the solution of regional and national problems, for synthesizing the results of related research, and for assistance in attacking new problems of potential regional or national significance. The Department, on the other hand, depends upon the State agricultural experiment stations for bringing to bear upon problems an intimate knowledge of local conditions and adapting the general conclusions or developments of the Department and broadly cooperative research to the varying conditions of the individual States.

The extent of the cooperation between the Department and the State agricultural experiment stations is indicated by the fact that during the fiscal year 1941 there were executed approximately 1,350 new or revised formal memoranda of understanding covering cooperative research between bureaus of the Department and the State stations. In addition, there was considerable informal cooperation between Department bureaus and State stations.

The Federal-grant funds for the State agricultural experiment stations are authorized by the Hatch Act of March 2, 1887, the Adams Act of March 16, 1906, the Funnell Act of February 24, 1925, and Title I of the Bankhead-Jones Act of June 29, 1935. As the same stations receive benefits from each of these acts and the funds are used for the same general purpose, the explanatory notes covering these funds are treated as a unit to avoid repetition of the various statements which apply to each of the funds.

Alaska, Hawaii, and Puerto Rico have had the benefits of the Hatch, Adams, and Funnell Acts extended to them through special authorizing acts of Congress. Since there are separate acts applying to each of these possessions and each of these areas has its own peculiar agricultural problem, individual justifications are included for the estimates in these cases.

Projects 1, 2, 3, and 8. Payments to States for Agricultural Experiment Stations under the Hatch Act (March 2, 1887), the Adams Act (March 16, 1906), the Funnell Act (February 24, 1925), and Title I of the Bankhead-Jones Act (June 29, 1935):

Objective: To provide for research by the State agricultural experiment stations (and by the Hawaii, Alaska, and Puerto Rico stations under the Bankhead-Jones Act) for the purpose of solving the problems encountered in the improvement of agriculture and rural life.

Authorization: The authorizations for the Federal-grant funds provided by the Hatch Act, Adams Act, Funnell Act, and Title I of the Bankhead-Jones Act are briefly as follows:

The Hatch Act (March 2, 1887). This Act authorizes \$15,000 per annum to each State for agricultural experiment stations "To aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."



The Adams Act (March 16, 1906). This Act authorizes \$15,000 per annum to each State for the more complete endowment and maintenance of the State agricultural experiment stations to be "applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry of the United States."

The Furnell Act (February 24, 1935). This Act authorizes \$60,000 per annum to each State for the more complete endowment of agricultural experiment stations to be "applied only to paying the necessary expenses of conducting investigations or making experiments bearing directly on the production, manufacture, preparation, use, distribution, and marketing of agricultural products and including such scientific researches as have for their purpose the establishment and maintenance of a permanent and efficient agricultural industry and such economic and sociological investigations as have for their purpose the development and improvement of the rural home and rural life and for printing and disseminating the results of said researches."

Under the Hatch, Adams, and Furnell Acts each State receives an equal amount, \$30,000 annually. The States are not required to provide offset or matching funds under these Acts. The States are expected, however, to provide the larger part of the facilities for research in the way of buildings and land.

The Bankhead-Jones Act, Title I (June 29, 1935). For payments to the States, Hawaii, Alaska, and Puerto Rico for agricultural experiment stations, this Act authorizes the following appropriations to be apportioned on the basis of rural population: Fiscal year 1936, \$600,000; fiscal year 1937, \$1,200,000; fiscal year 1938, \$1,800,000; fiscal year 1939, \$2,400,000; fiscal year 1940 and thereafter, \$3,000,000. Beginning with the fiscal year 1939, the full amounts have not been appropriated as shown in the following tabulation of action taken in regard to this item:

Title I, Bankhead-Jones Act of 1935

| Fiscal<br>Year | Authorized by<br>Title I of the<br>Bankhead-Jones<br>Act | Budget<br>estimate | Appropriation |
|----------------|--|--------------------|---------------|
| 1939           | \$2,400,000  | \$1,800,000        | \$2,100,000   |
| 1940           | 3,000,000  | 2,400,000          | 2,400,000     |
| 1941           | 3,000,000  | 2,400,000          | 2,400,000     |
| 1942           | 3,000,000  | 2,400,000          | 2,463,708     |
| 1943           | 3,000,000  | 2,000,000          | - - -         |

The appropriation for payments to States, Hawaii, Alaska, and Puerto Rico under Title I of the Bankhead-Jones Act is for agricultural research similar to that specified in section 1 of the Act as follows:

"research into laws and principles underlying basic problems of agriculture in its broadest aspects; research relating to the improvement of the quality of, and the development of new







and improved methods of production of, distribution of, and new and extended uses and markets for, agricultural commodities and by-products and manufactures thereof; and research relating to the conservation, development, and use of land and water resources for agricultural purposes."

The payments to the State agricultural experiment stations authorized by Title I of the Bankhead-Jones Act differ from those provided by previous acts in two important respects:

1. The allotment to each State, Territory, and Puerto Rico is contingent upon the State, Territory, or Puerto Rico making available out of its own funds during the fiscal year at least an equal amount for agricultural research and for the establishment and maintenance of necessary facilities for the prosecution of such research. Beginning with the first allotments to the State stations under this Act in 1936 and through 1941 the States as a whole have increased the amount of funds for the stations from State sources by over double the amount received under Title I of the Bankhead-Jones Act. The amounts of increases in the funds of the State stations from Bankhead-Jones and non-Federal funds are as follows by fiscal years:

| <u>Fiscal<br/>year</u> | <u>Increase in Bankhead-Jones<br/>grant funds over previous<br/>year</u> | <u>Increase in State<br/>station income from<br/>non-Federal sources<br/>over previous year</u> |
|------------------------|--|---|
| 1936                   | \$600,000  | \$745,853   |
| 1937                   | 600,000  | 713,074   |
| 1938                   | 600,000  | 1,541,316   |
| 1939                   | 300,000  | 465,940   |
| 1940                   | 300,000  | 286,490   |
| 1941                   | ---  | 1,203,052   |
| Total                  | <u>2,400,000</u>   | <u>4,955,725</u>  |

2. The allotments under the Bankhead-Jones Act are apportioned on the basis of rural population, the funds authorized by previous acts being on the basis of an equal amount for each State.

The allotments under Title I of the Bankhead-Jones Act to each State, Hawaii, Alaska, and Puerto Rico, as appropriated in the fiscal years 1941 and 1942 and as estimated for 1943, are shown on Table I, which follows. Asterisks in the last column of Table I, indicate the States and Territory which received funds under the proviso in the 1942 Appropriation Act to prevent their allotments being reduced because of changes in relative rural population.



TABLE I

ALLOTMENTS TO STATIONS UNDER BANKHEAD-JONES ACT OF JUNE 29, 1935, TITLE I,  
AS APPROPRIATED 1941 AND 1942, AND BUDGET ESTIMATE 1943

| STATION         | Appropriated<br>1941<br>(Basis 1930 rural<br>population) | Appropriated 1942<br>(Basis 1940 rural pop-<br>ulation and proviso in<br>1942 Approp. Act | Estimated<br>1943<br>(Basis 1940 rural<br>population) | Decrease<br>1943 |
|-----------------|--|---|---|------------------|
| Alabama ....    | \$82,695.12  | \$82,695.12   | \$67,288.24   | \$15,406.88*     |
| Alaska .....    | 2,236.48   | 2,252.44  | 1,877.04  | 375.40           |
| Arizona .....   | 12,422.56  | 13,285.16   | 11,070.96   | 2,214.20         |
| Arkansas ...    | 63,983.20  | 63,983.20   | 51,647.61   | 12,335.59*       |
| California ..   | 65,941.96  | 81,893.20   | 68,244.70   | 13,648.94        |
| Colorado ...    | 22,430.96  | 22,430.96   | 18,125.10   | 4,305.86*        |
| Connecticut ..  | 20,658.08  | 22,507.32   | 18,756.11   | 3,751.21         |
| Delaware ...    | 5,010.20   | 5,189.96  | 4,324.95  | 865.01           |
| Florida ....    | 30,801.64  | 34,782.16   | 28,985.15   | 5,797.01         |
| Georgia .....   | 87,522.92  | 87,522.92   | 69,769.23   | 17,753.69*       |
| Hawaii .....    | 9,186.40   | 9,186.40  | 5,414.96  | 3,771.44*        |
| Idaho .....     | 13,718.56  | 14,219.84   | 11,849.86   | 2,369.98         |
| Illinois ...    | 86,736.52  | 86,736.52   | 71,051.54   | 15,684.98*       |
| Indiana ....    | 62,722.60  | 62,900.44   | 52,417.04   | 10,483.40        |
| Iowa .....      | 64,854.64  | 64,854.64   | 49,488.42   | 15,366.22*       |
| Kansas .....    | 50,050.96  | 50,050.96   | 35,637.80   | 14,413.16*       |
| Kentucky ...    | 73,938.04  | 81,533.32   | 67,944.44   | 13,588.88        |
| Louisiana ..    | 55,133.44  | 56,502.80   | 47,085.67   | 9,417.13         |
| Maine .....     | 20,692.16  | 20,692.16   | 17,159.48   | 3,532.68*        |
| Maryland ...    | 28,550.48  | 30,259.72   | 25,216.43   | 5,043.29         |
| Mass. ....      | 18,182.20  | 18,674.92   | 15,562.42   | 3,112.50         |
| Michigan ...    | 66,967.84  | 73,566.60   | 61,305.50   | 12,261.10        |
| Minnesota ..    | 56,797.64  | 57,269.04   | 47,724.20   | 9,544.84         |
| Mississippi ..  | 72,651.40  | 72,651.40   | 59,592.68   | 13,058.72*       |
| Missouri ...    | 76,967.80  | 76,967.80   | 62,072.09   | 14,895.71*       |
| Montana ....    | 15,503.16  | 15,503.16   | 11,841.56   | 3,661.60*        |
| Nebraska ...    | 38,776.60  | 38,776.60   | 27,285.53   | 11,491.07*       |
| Nevada .....    | 2,460.64   | 2,734.64  | 2,278.86  | 455.78           |
| N. Hampshire .. | 8,357.20   | 8,507.40  | 7,089.49  | 1,417.91         |
| N. Jersey ..    | 30,525.84  | 31,260.32   | 26,050.26   | 5,210.06         |
| N. Mexico ..    | 13,761.00  | 14,516.00   | 12,096.68   | 2,419.32         |
| New York ...    | 89,831.64  | 94,478.24   | 78,731.86   | 15,746.38        |
| N. Carolina ..  | 102,628.00   | 106,085.56  | 88,404.62   | 17,680.94        |
| N. Dakota ...   | 24,675.76  | 24,675.76   | 17,358.35   | 7,317.41*        |
| Ohio .....      | 93,014.76  | 93,717.64   | 78,098.02   | 15,619.62        |
| Oklahoma ...    | 68,450.84  | 68,450.84   | 49,581.47   | 18,869.37*       |
| Oregon .....    | 20,175.80  | 22,790.32   | 18,991.94   | 3,798.38         |
| Penn. ....      | 134,689.52   | 135,322.64  | 112,768.88  | 22,553.76        |
| Puerto Rico ..  | 48,552.16  | 53,213.24   | 44,344.37   | 8,868.87         |
| Rhode Island .. | 2,263.84   | 2,449.04  | 2,040.85  | 408.19           |
| S. Carolina ..  | 59,464.96  | 59,464.96   | 48,796.01   | 10,668.95*       |
| S. Dakota ...   | 24,432.44  | 24,432.44   | 16,502.78   | 7,929.66*        |
| Tennessee ...   | 74,783.88  | 77,136.04   | 64,280.04   | 12,856.00        |
| Texas .....     | 149,364.76   | 149,364.76  | 119,240.05  | 30,124.71*       |
| Utah .....      | 10,503.68  | 10,503.68   | 8,332.39  | 2,171.29*        |
| Vermont ....    | 10,471.60  | 10,471.60   | 8,032.03  | 2,439.57*        |
| Virginia ...    | 71,144.56  | 71,144.56   | 58,986.31   | 12,158.25*       |
| Washington ..   | 29,515.72  | 33,254.64   | 27,712.20   | 5,542.44         |
| W. Virginia ..  | 53,813.44  | 55,859.16   | 46,549.31   | 9,309.85         |
| Wisconsin ...   | 60,224.88  | 60,224.88   | 49,638.38   | 10,586.50*       |
| Wyoming ....    | 6,759.52   | 6,759.52  | 5,349.14  | 1,410.38*        |
| Total ...       | 2,400,000.00   | 2,463,707.08  | 2,000,000.00  | 463,707.08       |



\* Indicates (in preceding Table I) States which received funds under the adjustment provision in 1942, to prevent reduction in allotments because of changes in relative rural population.

Income of State agricultural experiment stations: As explained under the heading "authorization", the only Federal-grant fund act which requires offsetting on the part of the States is the Bankhead-Jones Act. Although none of the other Federal-grant fund acts include such a requirement, the States as an average have been contributing more than \$2 to the support of their agricultural experiment stations to each \$1 of all Federal-grant funds received for agricultural research. A chart has been prepared which shows graphically the relationship of the amounts of the Federal-grant fund appropriations to the income of the State agricultural experiment stations from State sources. Copies of this chart are available for members of the committee.

During the fiscal year 1941, the income of the State, Territorial, and Puerto Rican agricultural experiment stations from State sources was \$15,571,050.29, as compared to \$6,862,500 Federal-grant funds appropriated.

The amount of the Federal-grant fund allotments and income from State sources of each of the State, Territorial, and Puerto Rican agricultural experiment stations for the fiscal year 1941 is shown in the following tabulation:





Income of Stations Fiscal Year 1941

| Station              | Federal      | Non-Federal   | Total         |
|----------------------|--------------|---------------|---------------|
| Alabama.....         | \$172,695.12 | \$470,186.48  | \$642,881.60  |
| Alaska.....          | 27,236.48    | 24,209.59     | 51,446.07     |
| Arizona.....         | 102,422.56   | 134,041.07    | 236,463.63    |
| Arkansas.....        | 153,983.20   | 116,276.83    | 270,260.03    |
| California.....      | 155,941.96   | 1,359,379.81  | 1,515,321.77  |
| Colorado.....        | 112,430.96   | 162,726.83    | 275,157.79    |
| Connecticut State..  | 55,329.04    | 291,606.02    | 346,935.06    |
| Connecticut Storrs.. | 55,329.04    | 73,231.24     | 128,560.28    |
| Delaware.....        | 95,010.20    | 47,454.70     | 142,464.90    |
| Florida.....         | 120,801.64   | 763,280.83    | 884,082.47    |
| Georgia.....         | 177,522.92   | 153,523.00    | 331,045.92    |
| Hawaii.....          | 76,686.40    | 104,378.91    | 181,065.31    |
| Idaho.....           | 103,718.56   | 67,912.15     | 171,630.71    |
| Illinois.....        | 176,736.52   | 505,497.63    | 682,234.15    |
| Indiana.....         | 152,722.60   | 1,093,986.21  | 1,246,708.81  |
| Iowa.....            | 154,854.64   | 385,959.92    | 540,814.56    |
| Kansas.....          | 140,050.96   | 211,405.68    | 351,456.64    |
| Kentucky.....        | 168,938.04   | 402,585.10    | 571,523.14    |
| Louisiana.....       | 145,133.44   | 209,417.74    | 354,551.18    |
| Maine.....           | 110,692.16   | 121,429.26    | 232,121.42    |
| Maryland.....        | 118,550.48   | 152,729.11    | 271,279.59    |
| Massachusetts.....   | 108,182.20   | 213,286.94    | 321,469.14    |
| Michigan.....        | 156,967.84   | 316,575.26    | 473,543.10    |
| Minnesota.....       | 146,797.64   | 478,514.62    | 625,312.26    |
| Mississippi.....     | 162,651.40   | 243,505.41    | 406,156.81    |
| Missouri.....        | 166,967.80   | 240,156.03    | 407,123.83    |
| Montana.....         | 105,503.16   | 143,574.43    | 252,077.59    |
| Nebraska.....        | 128,776.60   | 220,238.13    | 349,014.73    |
| Nevada.....          | 92,460.64    | 11,929.06     | 104,389.70    |
| New Hampshire.....   | 98,357.20    | 64,404.16     | 162,761.36    |
| New Jersey.....      | 120,525.84   | 519,848.00    | 640,373.84    |
| New Mexico.....      | 103,761.00   | 72,457.47     | 176,218.47    |
| New York Cornell.... | 161,848.48   | 839,187.98    | 1,001,036.46  |
| New York State.....  | 17,983.16    | 385,855.00    | 403,838.16    |
| North Carolina.....  | 192,628.00   | 131,371.01    | 323,999.01    |
| North Dakota.....    | 114,675.76   | 123,275.75    | 237,951.51    |
| Ohio.....            | 183,014.76   | 1,154,433.10  | 1,337,447.86  |
| Oklahoma.....        | 158,450.84   | 351,191.08    | 509,641.92    |
| Oregon.....          | 110,175.80   | 336,810.05    | 446,985.85    |
| Pennsylvania.....    | 224,689.52   | 215,725.87    | 440,415.39    |
| Puerto Rico.....     | 98,552.16    | 196,705.41    | 295,257.57    |
| Rhode Island.....    | 92,263.84    | 5,948.44      | 98,212.28     |
| South Carolina.....  | 149,464.96   | 249,109.01    | 398,573.97    |
| South Dakota.....    | 114,432.44   | 80,731.39     | 195,163.83    |
| Tennessee.....       | 164,783.88   | 111,308.66    | 276,092.54    |
| Texas.....           | 239,364.76   | 808,062.12    | 1,047,426.88  |
| Utah.....            | 100,503.68   | 69,513.38     | 170,017.06    |
| Vermont.....         | 100,471.60   | 30,939.37     | 131,410.97    |
| Virginia.....        | 161,144.56   | 126,159.88    | 287,304.44    |
| Washington.....      | 119,515.72   | 244,414.92    | 363,930.64    |
| West Virginia.....   | 143,813.44   | 88,814.57     | 232,628.01    |
| Wisconsin.....       | 150,224.88   | 519,799.00    | 670,023.88    |
| Wyoming.....         | 96,759.52    | 122,986.68    | 219,746.20    |
| Total.....           | 6,862,500.00 | 15,571,050.29 | 22,433,550.29 |



The problem and its significance: The State agricultural experiment stations have a dual responsibility in that (1) their research must be directed at the agricultural problems of their own individual States; and in that (2) participation in regional and national agricultural research programs is necessary if these programs are to be most effective.

Because of differences in climate, soil, and other local problems, each State has distinct problems of production and growing of crops and livestock. There are State and local problems of substitute crops, crop variety, fertilizer use, insect and disease control, storage of agricultural products, livestock production, etc. The policy of the Department has been that the initiative in work on the local problems of the State should be assumed primarily by the State, the Federal Government giving its support through the grant funds for State agricultural experiment stations. The farmers in the individual States naturally look to their State agricultural experiment stations for solution of State and local problems and in recent years have requested increased service along many lines to help meet rapidly changing conditions.

In addition to its responsibility to the people of its own State, each State has its obligations on the regional and national plane. Each State represents a part of the national picture as regards the production of strategic materials to meet defense needs and the conduct of programs of land-use planning, agricultural adjustment, soil conservation and erosion control, resettlement, flood control, rural electrification, control of pests and diseases, and other programs extending beyond State lines. Because of the facts, experience, and local knowledge accumulated by the Stations, their full participation with Federal agencies in developing, assembling, and interpreting the facts on which local action programs must be based seems essential. State-Federal cooperation is needed to bring together, appraise, and consolidate all available facts for strengthening agricultural adjustment programs; for carrying on new observations, experiments, and research to find substitute agricultural enterprises as replacements for existing enterprises that lead to soil depletion and erosion; for developing adjustments in livestock and farm management practices where additional pastures and hay crops or other modifications are needed for soil conservation and land-use adjustment; and to provide opportunity for consultations and the supplying of factual data basic to national flood control, water resources, crop insurance, and other programs. In addition to direct participation with Federal agencies, the State stations, to an increasing extent, are acting as groups by regions to provide cooperative, coordinated attacks on problems of regional and national interest.

The need from a National and State standpoint for participation on the part of each State along these lines is apparent from the fact that for the United States as a whole we must deal with approximately 775 type-of-farming areas. Even considering this many type-of-farming areas, State station representatives must adjust and adapt findings for recommendations to fit many additional combinations of soils, markets, transportation, land ownership, ability, and finances of the individual farmers.





In addition to meeting the problems of local importance and participation in attacking general regional and national problems, the State stations are being called upon, and will no doubt be called upon to an increasing extent, for help on special problems of production, adjustment, nutrition, and other problems to meet defense needs. The State stations will likewise be called upon for aid in the difficult problems of adjustment following the present emergency.

Plan and progress of work: The funds appropriated pursuant to the authorizations in the Hatch, Adams, and Furnell Acts and Title I of the Bankhead-Jones Act of June 29, 1935, are warranted direct to the States upon certification of the Secretary of Agriculture that the States have complied with the terms of the Acts granting the funds. The work and expenditures under the Federal-grant funds are reviewed by a representative of the Office of Experiment Stations at each of the State stations annually as a basis for certification of the eligibility of the stations to receive the Federal-grant funds in the succeeding fiscal year.

Expenditures by the State stations of the funds received under the Adams, Furnell, and Bankhead-Jones Acts may be made only in support of research projects which have been approved in advance by the Office of Experiment Stations. A research project in the sense used is rather specific in objective and constitutes a research attack for the benefit of agriculture, largely on problems of practical importance submitted by farmers for solution.

The problems presented by the public for solution are usually large ones. When broken into various segments, research may be undertaken on certain phases or objectives and brought to completion. Work on other urgent phases is then begun. There is thus continuing progress in experiment station work marked by the completion of objectives and the taking up of new ones. According to the scope and complexity of a project it may be completed and closed within a few years or continued over a number of years with revisions from time to time as certain objectives are completed.

With this understanding as to plan of research attack by projects, information as to revision, completion, and existing projects is pertinent. During the six-year period covered by the fiscal years 1936-1941, inclusive, the number of projects during each year that were active, revised, and completed, and the percent of projects revised or completed were as follows:

| Fiscal year | Number of projects during year |         |           | Percent revised or completed |
|-------------|--------------------------------|---------|-----------|------------------------------|
|             | Active                         | Revised | Completed |                              |
| 1936        | 2,542                          | 102     | 336       | 17.2                         |
| 1937        | 2,644                          | 81      | 252       | 12.6                         |
| 1938        | 2,860                          | 119     | 286       | 14.2                         |
| 1939        | 3,021                          | 122     | 307       | 14.2                         |
| 1940        | 3,185                          | 115     | 320       | 13.7                         |
| 1941        | 3,235                          | 193     | 407       | 18.5                         |





A review of Federal-grant fund projects completed and of progress on projects still active indicates progress during the fiscal year 1941 in the form of useful contributions for practical application to agriculture or equally important contributions toward an ultimate solution of troublesome problems through increased basic information over the broad field of agriculture, including the rural home. A summary report of examples of such progress for the fiscal year 1941 is available, if desired, for the record or for review by the committee.

Project 4. Hawaii Station Act (Act May 16, 1928).

Authorization: The appropriations for the Hawaii Agricultural Experiment Station are authorized by the Act of May 16, 1928, which extends to the Territory of Hawaii the benefits of the Hatch, Adams, and Purnell Acts, under which each of the States receives \$90,000 annually for agricultural research. The Act of 1928 authorizes appropriations beginning with \$15,000 in 1930 and a series of successively increasing appropriations until 1940 and subsequent years when the amount authorized is \$90,000. The following tabulation indicates the action taken in regard to this appropriation:

| <u>Fiscal year</u> | <u>Authorized by<br/>Act of May 16,<br/>1928</u> | <u>Budget<br/>Estimate</u> | <u>Appropriation<br/>Act</u> |
|--------------------|--|----------------------------|------------------------------|
| 1938               | \$60,000   | \$60,000                   | \$50,000                     |
| 1939               | 70,000   | 60,000                     | 55,000                       |
| 1940               | 80,000   | 60,000                     | 60,000                       |
| 1941               | 90,000   | 70,000                     | 67,500                       |
| 1942               | 90,000   | 67,500                     | 67,500                       |
| 1943               | 90,000   | 67,500                     | 67,500                       |

Objective: To provide for investigations by the Hawaii Agricultural Experiment Station looking to the establishment and maintenance of a permanent and efficient agriculture and to the improvement of the rural home and rural life in Hawaii, as authorized by the Act of May 16, 1928, and to aid in meeting special requirements for food and feed production created by national defense needs.

The problem and its significance: The importance of Hawaiian agriculture is out of all proportion to the land area and population involved. Hawaii has long been an important American outpost for commerce. It has now become a strategic outpost for national defense. The problems of the Territory in connection with food production are becoming increasingly significant in the war emergency.

For some time the major areas of suitable soil in Hawaii have been devoted to plantation production of sugarcane and pineapple for export and only about 30 percent of the food consumed in the Islands has been produced there. In recent years there has developed a realization of the need for increasing agricultural diversification in Hawaii to offset the ever



possible economic threat of low prices or loss of markets for the two major exported products, to relieve population pressure by utilizing an increased supply of farm labor, and to raise the economic status of approximately 5,000 families operating small farms on an estimated 50,000 acres. Progress has been made in this direction, as indicated by the fact that 14,000 more tons of locally grown food were marketed in the Islands in 1940 than in 1935. Since the 1940 census, however, the population of 423,000 has been increased by an estimated additional Army and Navy personnel and defense construction workers. This recent increase in population accentuates the already recognized need for agricultural diversification. (Further information will be supplied verbally.)

Territorial agencies which have been working actively for diversified production have now joined under the Governor in an intensified effort to meet emergency defense needs with respect to food supplies. In turning to the experiment station for guidance, it was found that although much immediately useful information had already been accumulated by the station, much more research was needed on still unsolved problems of food, feed, and forage crop production and preservation. There is a demand for further development of crop varieties, production methods, and systems of farm management best suited to the varied soils, rainfall, light intensity, and altitude prevailing in different parts of the Islands. The agricultural problems and the agricultural possibilities exceed in diversity those found in the majority of the States and since results of agricultural research on the mainland do not fit Hawaiian conditions, the problems can be solved and the possibilities attained only through adequate expansion of experiment station work in the Islands.

Plan, progress, and program of work: The funds appropriated pursuant to the authorization in the Act of May 16, 1928, are warranted direct to the Hawaii Agricultural Experiment Station, upon certification by the Secretary of Agriculture, for the support of research projects approved by the Office of Experiment Stations.

Entomologists, plant pathologists, agriculturists, and other investigators at the Hawaii Agricultural Experiment Station have contributed to the Territorial emergency planning program by taking up special problems related to emergency food production and storage. They have also advanced the continuing program of research. The Territory in 1941 increased its annual appropriation to the station by over \$11,000 and made 58 acres of additional good land available, thereby evidencing its realization of the need to accelerate the work. Projects on the tomato bug and the cabbage worm were completed, suitable methods having been worked out for dealing with these pests under Hawaiian conditions. The objectives of the taro investigations having been achieved, this project was completed with final publication on processing methods for taro products. New studies were started on the best methods of grazing Napier grass, the most useful of all Hawaiian pasture grasses; on the value to animals of feeding strip cane silage to utilize a surplus sugarcane byproduct; on cultural methods and irrigation for papaya, the most important Island fruit excepting pineapples, and on the control of a virus disease that has attacked it.





Examples of promising results already secured in the work of the Hawaii station under Federal-grant funds follow:

The work already done in testing major vegetable crop varieties is of immediate value in meeting defense emergency needs. Major emphasis is now placed on "defense crops". Five new hybrid strains of high yielding, high quality sweet potatoes developed for the Islands have been released to growers for year-round food production, especially dependable in an emergency. A sweet corn developed by the Department's Puerto Rico station was found best of all for Hawaii, with less damage from leafhopper and mosaic. It is being multiplied and improved. Three tomato varieties have been found superior for Hawaii but still subject to serious diseases for which a long resistance-breeding program has been started. A large number of vegetable types and varieties have been discarded as failures under Hawaiian tests. The best selected types, however, need improvement especially in resistance. A start has been made on improved production of Irish potatoes by determining the best existing varieties for the Islands, learning best methods of storing seed potatoes, and starting to find ways to eliminate serious disease hazards. In tests, cryolite spray or cryolite bait increased yields of tomatoes as much as three tons per acre by controlling attacks of corn earworm. A Japanese bean variety was found resistant to the pod borer. Many kinds of seeds kept in ordinary storage in the Hawaiian climate soon lose power to germinate. Storage methods have been worked out for the Islands whereby most seeds can retain their viability for years.

In investigations contributing to defense nutrition, records of 162 families disclosed that their diets were generally deficient in lime and in the A and B vitamins. Methods developed by the station are being used to determine the available iron in Hawaiian vegetables. Continued emphasis is being given to the determination of the nutritive value of foods grown locally. So far, 65 kinds of fruits and vegetables have been analyzed and tested. A dozen more are under current study. Papayas and guavas were found very high in vitamin C.

Projects 5 and 6. Alaska Station Acts (February 23, 1929 and June 20, 1936).

Authorization: The Alaska Station Act of February 23, 1929, extends the benefits of the Hatch Act to the Territory of Alaska and authorizes an annual appropriation of \$15,000 for this purpose.

The Alaska Station Act of June 20, 1936, extends to Alaska the benefits of the Adams and Furnell Acts and authorizes appropriations beginning at \$5,000 in 1937 and increasing each year until 1947 when the authorized appropriation is \$37,500, which is one-half of that provided for each State under the Adams and Furnell Acts. Beginning with the fiscal year 1939, the full amounts authorized have not been appropriated. The following tabulation indicates the action taken in regard to this item:





Alaska

| <u>Fiscal year</u> | <u>Authorized by<br/>Act of June 20,<br/>1936</u> | <u>Budget<br/>Estimate</u> | <u>Appropriation</u> |
|--------------------|---|----------------------------|----------------------|
| 1939               | \$10,000  | \$10,000                   | \$8,750              |
| 1940               | 12,500  | 10,000                     | 8,750                |
| 1941               | 15,000  | 10,000                     | 10,000               |
| 1942               | 17,500  | 10,000                     | 10,000               |
| 1943               | 20,000  | 10,000                     | --                   |

Objective: To provide for investigations of the Alaska Agricultural Experiment Station to improve Alaskan agriculture, as authorized by the acts of February 23, 1929, and June 20, 1936.

The problem and its significance: With limited funds and research personnel, the Alaska station is attempting to serve the agricultural research needs of a large and varied area which does not produce as much as 10 percent of the food consumed by the population. High labor and material costs, moreover, limit the work that can be accomplished in Alaska with a given allotment as compared with the States. Research conducted in the States by the State agricultural experiment stations and the Federal Department of Agriculture is not directly applicable to Alaskan conditions because of differences in such vital agricultural factors as nature of soils, climate, and length of day.

Defense activities in Alaska have created a strong demand for increased production of local food supplies, especially of dairy products, poultry and eggs, vegetables, potatoes, and animal feeds and for the conservation and preservation of all available food resources. Considerable gains in civilian population for emergency construction programs, the expansion of military and naval forces, and shortages of cargo space and rail transportation have intensified the need for expanding agricultural output in Alaska both currently and as a long-time program. The successful production of increased food supplies in Alaska is dependent upon the development through research of necessary information.

There is urgent need by farmers for new information in all of the lines of work in progress by the station, and in addition there is a strong demand for new work along economic lines, including farm management, cost of production, and marketing studies. Little is known of the nutritive value of locally produced foods and feeds. Poultry raising and vegetable and small fruit production can be given only elementary attention. The improvement of facilities and structures for the storage of food products for home use and local markets should be given attention. There are problems of barn construction to permit better curing of hay, of the better adaptation of the trench silo, of forage conservation, of land clearing, and the irregular settling of fields due to uneven thawing of the ice layer. Much additional information is needed as to the soils of



Alaska, their adaptation to particular crops, their requirements for fertilizers and minor elements, and soil conservation practices to maintain productivity.

Plan, progress, and program of work: The funds appropriated under the Acts of February 23, 1929, and of June 20, 1936, are warranted direct to the Alaska Agricultural Experiment Station upon certification by the Secretary of Agriculture for the support of research projects approved by the Office of Experiment Stations.

In an attempt to meet the varied needs of the Territory, the research program of the Alaska station is carried on in three localities and deals with the production and improvement of small grains, forage crops, pastures, canning peas, and potatoes; with problems related to the feeding of dairy cattle, sheep, and swine; and the nutrition, breeding, and diseases of fur-bearing animals. Despite the handicap of limited funds, the Alaska station has made steady although necessarily slow progress in the solution of problems. Superior strains of wheat, oats, rye, and barley have been adapted to local conditions and distributed to farmers. Several years' trials have been completed on a considerable number of grasses and legumes for pasture and hay crops, and leads have been obtained which warrant intensive follow-up to insure the winter-hardy, high quality, low-cost feeds essential to economical dairy and live-stock production. For example, yellow blossom alfalfa has proved well adapted to Matanuska conditions and seed is being released by the station for use by farmers. However, the variety is mixed as to types and there is need for breeding and selection to fix superior lines for both pasture and hay uses. The station has shown that the trench silo can be used for preserving oat and pea silage for winter feeding if given a protective covering of straw or moss. Farmers are making prompt use of the information but need additional guides in the preservation of other possible silage crops. The abundant native grasses especially should be studied as to methods of ensiling and feeding value.

The station has made encouraging progress within a short period on the control of diseases and parasites of fur-bearing animals, on the improvement of the blue fox by crossing with the Arctic white to fix high-value color phases in pelts, and in the solution of breeding problems with marten to enable fur farmers to produce this desirable fur under ranch conditions.

Project 7. Puerto Rico Station Act (March 4, 1931).

Authorization: The Puerto Rico Station Act of March 4, 1931, extends to Puerto Rico the benefits of the Hatch, Adams, and Furnell Acts and authorizes successively increasing appropriations each year until the amount reaches \$90,000, the same as each State receives under the Hatch, Adams, and Furnell Acts. Beginning with the fiscal year 1939, the full amounts authorized have not been appropriated. The action taken on this appropriation is shown in the following tabulation:



Puerto Rico

| Fiscal year | Authorized by<br>Act of March 4,<br>1931 | Budget<br>Estimate | Appropriation |
|-------------|--|--------------------|---------------|
| 1939        | \$45,000                                 | \$45,000           | \$42,500      |
| 1940        | 50,000                                   | 45,000             | 42,500        |
| 1941        | 60,000                                   | 50,000             | 50,000        |
| 1942        | 70,000                                   | 50,000             | 50,000        |
| 1943        | 80,000                                   | 50,000             | --            |

Objective: To provide for research by the agricultural experiment station of the University of Puerto Rico to improve the agriculture of Puerto Rico, as authorized by the Act of March 4, 1931.

The problem and its significance: Puerto Rico has a population of 544 people per square mile, which is greater than that of such generally recognized densely populated countries as Japan, Italy, and Germany. This part of the United States is almost entirely dependent upon agriculture for its income and subsistence, but with its dense population there is less than three-fourths acre of arable land per person. During the decade between 1930 and 1940, the population increased 21.1 percent. Puerto Rico, therefore, with population-pressure problems, with a shortage of arable land, and with agriculture almost the sole source of income, has acute need of research to aid in the solution of its agricultural problems.

Since agriculture is the principal source of livelihood, Puerto Rico has need of agricultural research for the development of a subsistence type of agriculture to provide the people with essential foodstuffs for health and for the development of crops for sale either in the local markets or for export to the continental United States to provide a cash income.

One problem is the development, through tropical animal industry research, of a better balanced diet for the population. Puerto Rican rations are long on fats and carbohydrates and short on protein, minerals, and some of the vitamins. Information is lacking on the breeding, feeding, and management of poultry, pigs, and other domesticated animals as sources of protein foods for the population; on milk production, including the breeding and feeding of dairy cows and milk goats to provide a source of milk for the children of Puerto Rico who do not now have enough of this food for their healthy development; on the diseases and parasites of farm animals which are more destructive in the tropical climate of Puerto Rico than they are in the continental United States.

Other examples of specific problems are the development of fruits and vegetables suitable for export and for improving the food supply of individual farms. Improvement in the farm credit and farm debt situation through comprehensive analysis; and conservation of the Puerto Rican soil, which is the basis for the livelihood of the island.





Plan, progress, and program of work: The funds appropriated pursuant to the authorization in the Act of March 4, 1931, are warranted direct to the Puerto Rico Agricultural Experiment Station upon certification by the Secretary of Agriculture for the support of research projects approved by the Office of Experiment Stations.

The current work of the agricultural experiment station of the University of Puerto Rico is yielding results of benefit to Puerto Rican agriculture. A study of the consumption of selected foods in the urban and rural regions of Puerto Rico has indicated that the supply of food per person in Puerto Rico is one-third less than the standard for an adequate low-cost diet. In addition to deficiencies in the quantity of food consumed, it was found that the protective foods (such as dairy products, eggs, fruits, meats, and yellow, green, and leafy vegetables) consumed per person were only one-half of what they should be according to the standards for an adequate diet. There were deficiencies in the consumption of all protective foods except tomatoes and citrus fruits, but the most critical deficiency occurred in the case of milk and eggs. Milk consumed in 1937-38 was only 16 percent and egg consumption only 19 percent of the standard for an adequate diet. The supply per person of leafy, green and yellow vegetables was 50 percent of the standard, and meats, poultry, and fish 70 percent.

To supply data for use in increasing dairy and beef cattle production in Puerto Rico to improve public health, a study was made to determine whether forage crops when locally grown might be substituted for imported, expensive nitrogen feed concentrates. Considerable data have been assembled as to suitable locations for various grasses, the benefits of fertilization, the relative ability of grasses to check weed growth, comparative yields, etc., under Puerto Rican conditions. Merker grass which was introduced by the station in 1937-38 has proved to be a good yielding, excellent forage and is apparently resistant to the "eye spot" disease. It has gained great popularity among the local dairy farmers. It was found that guinea and Merker grass, cow peas, and velvet beans can be easily cultivated on the lower priced lands of Puerto Rico. When properly cared for, they supply a large amount of good quality feed.

A study of the station has shown that 58 percent of the Puerto Rico tomato crop was exported in 1940 as compared with only 5 percent in 1939. The profits per acre were doubled in 1940, notwithstanding yields per acre in that year were roughly only half of what they were in 1939. Tomatoes are consequently showing encouraging promise as an export crop.

Pineapple growers in Puerto Rico have been troubled by an exudation of gum from the lower part of the fruit which greatly lowers the market value of pineapples. The station has found that spraying with an emulsion of Diesel oil, water, and laundry soap reduced gumming injury in one locality from 30 percent to less than 5 percent.

During the past year the station has made 171 crosses of sugarcane, involving many different combinations, species, varieties, and two genera, in an effort to develop improved and disease-resistant types for use in the most important Puerto Rican enterprise.



There are approximately 400,000 acres of coffee planted in Puerto Rico, producing a gross annual income of about \$2,500,000. A study made by the Puerto Rico station of various coffee tree pruning systems indicates that a particular system which forces new shoots on which coffee-producing lateral branches form will promote regular prolonged and profitable fruiting. Experiments of the station are demonstrating that half sunlight and half shade is best suited to coffee production, and the tree, Inga Inga, was found best for shading purposes. Preliminary results of the work of the station to develop a satisfactory fertilizer formula for Puerto Rican coffee production indicate that at least 37 pounds of phosphorus and 112 pounds of nitrogen should be applied per acre. The application of one ton of lime per acre was found to be economically feasible on highly acid soils in view of the increased yields.

(b) ADMINISTRATION OF GRANTS  
TO STATES AND COORDINATION OF RESEARCH

Appropriation Act, 1942 plus \$2,202  
supplemental for within-grade promotions .....\$163,937  
Budget Estimate, 1943 ..... 165,305

Change from 1942:  
Additional for administrative promotions..... + 1,968

PROJECT STATEMENT

| Project  | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase |
|--|-----------|---------------------|---------------------|----------|
| 1. Administration of Federal-grant funds for State and Territorial agricultural experiment stations; coordination of research work of the State and Territorial stations, and coordination of this research with that of the Department; coordination of the research work of the Department; and administration of Department insular stations..... | \$160,575 | \$161,735           | \$161,735           | --       |
| 2. Net cost of within grade promotions.....  | --        | 2,202               | 4,170               | +\$1,968 |
| Reserve and unobligated balance.....   | 1,160     | --                  | --                  | --       |
| Total.....   | 161,735   | 163,937             | 165,905             | + 1,968  |



## WORK UNDER THIS APPROPRIATION

General. The Office of Experiment Stations (a) represents the Department in the administration of the Acts of Congress making appropriations for the support of State and Territorial agricultural experiment stations in the several States, Hawaii, Alaska, and Puerto Rico (Hatch Act, Adams Act, Furnell Act, and the Hawaii, Alaska, and Puerto Rico Station Acts); (b) coordinates the research work of the State and Territorial agricultural experiment stations and coordinates this research with that of the Department; (c) coordinates the research of the Department; and (d) administers the Federal agricultural experiment station in Puerto Rico.

Administration of Federal-grant funds for State and territorial agricultural experiment stations: Administration of the Acts granting funds to States and Territories involves supervision of the funds, close advisory relations with the stations as to research for which the funds are expended, annual examination of the work and expenditures of each station, coordination of the research activities of the Department with those of the State stations, preparation and issuance of "Experiment Station Record" and other reports, and preparation of the annual report to Congress on the work and expenditures of the stations as required by law.

The Federal funds paid to the States and Territories are largely expended on research projects submitted to the Office of Experiment Stations for advisory suggestions and approved in advance of expenditures. Programs of projects with proposed expenditures under the Federal funds are submitted by each station for review and approval at the beginning of each fiscal year. Changes and adjustments in work to best meet State needs are submitted throughout the year. There were 2,205 active Adams and Furnell projects in 1941, of which 567 were new or revised during the year.

To carry out the provisions of the Federal Acts, a representative, or representatives, of the Office visits each of the 50 State stations at least once annually and spends four to twenty-one days reviewing the expenditures and the research under way. In addition, staff members cooperate as specialists with individual stations and regional groups in the consideration of research programs for special fields.

As explained under the heading "Special Research Fund, Department of Agriculture," the Office also has the responsibility for the administration of the payments to States authorized by Title I of the Bankhead-Jones Act of June 29, 1935.

Coordination of research work of the State and territorial stations and coordination of this research with that of the Department: Coordinating the research of the Department of Agriculture with that of the State and Territorial stations and coordinating the research work among State stations is constantly in mind when the proposed research projects under Federal funds are reviewed for approval and when the work and expenditures of each station are reviewed and discussed with the State station di-







rectors and research staffs. Through personal conferences and committees having to do with research, close advisory relations are maintained with bureaus of the Department. Every opportunity is taken to promote effective cooperation between and among the State stations and between the State stations and the Department. During the fiscal year 1941 there were approximately 1,350 new or revised formal memoranda of understanding and agreements covering approximately 1,200 cooperative research undertakings between State stations and the bureaus of the Department which were reviewed, approved, and filed by the Office of Experiment Stations. The number of formal agreements and understandings entered into by individual stations ranged from 8 to 55, with an average of 39 for each State.

"Experiment Station Record" was established in 1889 as a part of the Federal-State joint participation in establishing and maintaining agricultural experiment stations. Its purpose is to make available promptly to staff members of all stations and the Department abstracts of current published results of research in this and other countries as an aid in planning research, avoiding duplication, and coordinating research effort. A total of about 7,800 such abstracts were prepared, edited, and published in 1941, involving translations from a number of the principal foreign languages. The abstract volumes are supplemented by indexes and a combined index is published for each ten volumes. Few, if any, of the stations have all the publications available, and the abstracting done by the Office of Experiment Stations avoids the necessity of duplicate abstracting by the several thousand research workers.

As a central agency for the State stations, the Office of Experiment Stations compiles lists of research projects in special fields, maintains an up-to-date list of the organization and personnel of the several stations and publishes a revised list annually, issues a monthly mimeographed list of new station publications, and prepares other lists and compilations of information.

The Office answers a large volume of inquiries from all parts of the world regarding the organization, personnel, relationships, and work of the State stations.

Coordination of the research work of the Department: Approximately \$23,000,000 of the appropriations for the Department of Agriculture for the fiscal year 1942 is allocated to research conducted by the Department. The administration of these research funds is distributed among 13 agencies of the Department. The program as a whole involves research at approximately 339 locations throughout the 48 States, including the work at 192 field stations, and in six foreign countries. There are many problems involved in effective integration of the research with the many other activities of the Department. The head of the office, in addition to his other duties, has personally carried out this function, as Director of Research, with only such additional assistance, for the most part, as could be furnished by the existing staff of the Office of Experiment Stations who have full-time duties in the administration and coordination of the research of the Federal-grand funds.



Assistance in coordinating the research work of the Department of Agriculture has been accomplished through advising the bureau chiefs and the Secretary of Agriculture with regard to the coordination and correlation of proposed research. Special attention has been given to adjustments of closely related research in different bureaus and to the coordination and integration of any new research with existing activities of the Department. The Chief of Office as Director of Research has participated in the preparation of research programs and budget estimates, especially in regard to coordination and cooperation, and serves on some 16 committees having to do primarily with policy, coordination, and cooperation in research.

The Office of Experiment Stations is responsible for the development of the programs, for presentation to the Secretary, of work to be undertaken by the bureaus of the Department under special research projects and at the special research laboratories in the major agricultural regions provided for by Title I of the Bankhead-Jones Act of June 29, 1935; for assistance in the development of cooperation with the State experiment stations, individually and by regions, in connection with the research of these laboratories; for general assistance in planning, directing, and supervising the work under the Special Research Fund, and for the general administration of the funds.

The Office has additional responsibility and additional work in connection with the task of planning and coordinating the program of the four new utilization of farm products regional research laboratories authorized by Section 202 of the Agricultural Adjustment Act of 1938 and of coordinating the work of the Department and the work of the State stations with the program of these laboratories. Under the provisions of Section 202, the Secretary is authorized and directed to use annually for the research program of these laboratories not to exceed four million dollars, one-fourth of which shall be allocated to each laboratory. In connection with this program to develop new scientific, chemical, and technical uses for farm products, "the Secretary is authorized and directed to cooperate with other departments or agencies of the Federal Government, States, State agricultural experiment stations, and other State agencies and institutions, counties, municipalities, business or other organizations, corporations, associations, universities, scientific societies, and individuals, upon such terms and conditions as he may prescribe."

To develop and carry forward this broad program on a Department level, the Secretary assigned the operating functions of these laboratories to the Bureau of Agricultural Chemistry and Engineering and provided:

- (1) that the Director of Research should be responsible for the planning and coordination of the program whether conducted by the Bureau of Agricultural Chemistry and Engineering or other bureaus of the Department;
- (2) that expenditure of the funds for these laboratories should be made on the basis of projects which had been reviewed and approved by the Director of Research and Chief, Office of Experiment Stations. Acting as a central clearing house of information as to the program of each





State experiment station and as to records of cooperation between the bureaus of the Department and the State stations, the Office staff naturally and necessarily will be called upon continuously for information and assistance.

Administration of Department insular stations: Administration of the Federal experiment station in Puerto Rico includes approval of research projects, budgets, and expenditures; the review, editing, and approval of publications; and general administrative direction of the activities of the station. In recent years the Office has had the responsibility of coordinating the work of the Federal station and that of the station of the University of Puerto Rico in accordance with the provisions of the Act of March 4, 1931, under which the latter station now receives the benefit of funds provided by the Hatch and supplemental Acts.

The Department formerly maintained agricultural experiment stations in Hawaii, Alaska, Guam, and the Virgin Islands. The Office answers a large volume of inquiries regarding agricultural conditions and possibilities in these possessions, as well as in Puerto Rico.

### (c) INSULAR EXPERIMENT STATIONS

Appropriation Act, 1942 plus \$482.  
 supplemental for within-grade promotions .....\$83,482  
 Budget Estimate, 1943..... 90,592

Change from 1942:

Net increase in working  
 funds.....+ 7,000  
 Additional for adminis-  
 trative promotions.....+ 110  
 Net increase.....+ 7,110

### PROJECT STATEMENT

| Project  | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase    |
|--|----------|---------------------|---------------------|-------------|
| 1. Federal Experiment Sta-<br>tion in Puerto Rico..... | \$82,495 | \$83,000            | \$90,000            | +\$7,000(1) |
| 2. Net cost of within-grade<br>promotions.....         | --       | 482                 | 592                 | + 110       |
| Reserve and unobligated<br>balance.....                | 505      | --                  | --                  | --          |
| Total.....   | 83,000   | 83,482              | 90,592              | + 7,110     |





### INCREASE

(1) An increase of \$7,000 in working funds is requested to repair leaky roofs and replace rotted and termite-infested wood in buildings of the Puerto Rico station.

Wood construction in buildings in the Tropics is subject to such rapid deterioration because of tropical rots and termite damage that the deterioration has advanced at a more rapid pace than the station could provide repairs without curtailing its research program.

A careful survey of the condition of the station buildings has disclosed that a large number are in a serious state of disrepair. Some of the buildings are considered dangerous. The requested increase would only provide for the most urgently needed repairs. The buildings which would be involved are from 18 to 33 years old. The repairs needed are as follows:

Office and laboratory building, constructed in 1909 with funds provided by the Government of Puerto Rico. The wood roof beams are termite infested and sagging, causing leaks. The iron gutters are worn out and half of the doors and windows are practically eaten out by termites.

Milk house, constructed in 1923. The present tile roof on wooden beams is leaky and a portion of it has fallen in.

Station residence, constructed in 1920. This is a tiled roof, frame dwelling, occupied by the assistant plant pathologist and physiologist of the station. Destruction by termites throughout the wood construction and dry rot on the outside walls have reached an advanced stage. Because of the weakening of the timbers from termite damage, the house is settling badly, making it impossible to close doors and windows. The roof is leaky.

Station residence, constructed in 1920. This is a frame dwelling, with a galvanized iron roof, occupied by an associate horticulturist. Termite destruction is in a very advanced stage throughout the house. The wooden foundation, flooring, walls, and timbers are badly damaged.

Station residence, constructed in 1908. This is a concrete structure, with a tile roof, occupied by bachelors of the station staff. The roof is in bad condition and very leaky. Termite infestation is general throughout the wood parts of the building. The concrete floors are badly cracked and pitted.

It is important that housing facilities be available for the scientific staff of the station. A continental American is unable to rent in Mayaguez a place affording the privacy and sanitation customary in the States.

Plan of work: The repairs proposed would be handled by force-account labor. Because of their advanced stage of disrepair, the residences should be replaced by modern structures which would be hurricane-, earthquake-, and termite proof, with tile floors, baths, and modern electric wiring which



are now lacking. If the cooperation of the local W.P.A. may be obtained, it would be the plan to replace these buildings, using the amounts estimated for repairs for the purchase of the necessary materials.

Financial requirements: On the basis of repairing the buildings, the estimated cost is itemized as follows:

|                                    |         |
|------------------------------------|---------|
| Office and Laboratory Building.... | \$3,000 |
| Milk House.....                    | 900     |
| Station Residence.....             | 1,500   |
| Station Residence.....             | 1,000   |
| Station Residence.....             | 600     |
| Total.....                         | 7,000   |

#### WORK UNDER THIS APPROPRIATION

Objective: The conduct of research for the continental United States which can best be carried on under the tropical conditions of Puerto Rico, and assistance in solving the agricultural problems of Puerto Rico.

The problem and its significance: The agricultural experiment station maintained by the Department at Mayaguez, Puerto Rico, since 1902, was originally established to aid in the improvement and diversification of agriculture in the island.

Since 1935, the agricultural experiment station of the University of Puerto Rico has been receiving gradually increasing Federal grants for agricultural research under the Puerto Rico Station Act of 1931. In accordance with the provisions of this Act, the work of the Federal and the University of Puerto Rico stations is coordinated. The Federal grants to the University of Puerto Rico station are enabling it to gradually assume increasing responsibility for needed research on the problems of concern to Puerto Rico alone, and the Department station is thereby able to serve more as a Federal tropical outpost station where bureaus of the Department may be provided with facilities for study, in cooperation with the station, of problems requiring or profiting by research under tropical conditions. During the present fiscal year the Bureau of Entomology and Plant Quarantine, the Forest Service, and the Farm Security Administration and the Soil Conservation Service of the Department of Agriculture, the Puerto Rico Reconstruction Administration of the Department of the Interior, and the Government of Puerto Rico have maintained activities at Mayaguez, using the facilities of the experiment station.

Through its experience and work with tropical plants and problems, the Puerto Rico station has a body of information on the production of these plants which is steadily being augmented and which is of value to the Department in assisting Latin American countries to grow products which the United States needs.

General plan: The work consists primarily of field and laboratory experiments in cooperation with bureaus of the Department, other Federal agencies,





the Government of Puerto Rico and its agencies, including the agricultural experiment station of the University of Puerto Rico, and farmers.

The work is organized under eight headings as follows: (a) quinine investigations, (b) insecticidal plants, (c) vegetable crops, (d) entomological investigations, (e) vanilla, (f) essential oils, (g) bamboo utilization, and (h) plant introductions.

Examples of progress and current program: The following examples of recent accomplishments under this appropriation are cited to show progress in one or more aspects of the broader problems involved. Other aspects of these problems are cited to indicate the present phases studied or the next logical steps to be taken in the research program.

Quinine investigations: Work was undertaken in 1935 on Cinchona, the tree from whose bark quinine is extracted, to ascertain the possibilities of having a nearby source of this drug for the United States. There is no other drug which can be used as effectively in treating intermittent fevers, such as malaria. Practically all the quinine used by the United States, both for the civilian population and the military forces, has been obtained from a foreign source. The development of a close source of supply of quinine is particularly important for this country in case the present markets should be closed.

Little information was available as to the growing methods used in the place in which quinine is produced. The station had to first secure introductions of quinine-producing plants through the cooperation of the Bureau of Plant Industry, and find out if quinine would grow in Puerto Rico and, if so, what conditions were favorable for the development of the plants.

The station now has 314 trees of different species of Cinchona from one to eight years of age established in permanent plantings in four places with altitudes varying from 1,000 to 3,000 feet. Eighty of these trees are of the high-yielding species, Cinchona ledgeriana, and there are 285 trees of this same species from six inches to three feet in height growing in nursery beds.

It has been found that Cinchona plants require unusually good drainage and protection from wind. Methods of storage to insure seed viability have been worked out and the proper stage of maturity for harvesting seeds to obtain maximum germination has been determined.

The work on quinine is now directed chiefly toward controlling a number of diseases which are serious factors limiting production.

The quinine plant material and facts as to production assembled are already being put to use in the interest of developing a source of quinine in the Americas. Assistance by the station staff, through the Department of Agriculture and the State Department, has been rendered to Latin American countries.





Insecticidal plants: The residues on agricultural products from poisonous sprays, such as lead arsenate, used for controlling insects, are often a menace to the health of the consumer. The insecticidal material, rotenone, which is obtained principally from tropical plants, is toxic to many insects, but is harmless to human beings and domestic animals. The value of rotenone is now firmly established as a harmless and effective substitute for arsenic-containing compounds in controlling many destructive insects of food-producing plants, but world supplies are not adequate and it is still expensive.

Over 300 species of tropical insecticidal plants have been introduced and tested with the cooperation of the Bureau of Plant Industry and Entomology and Plant Quarantine. The most promising species commercially belong to the genera Lonchocarpus, Derris, and Tephrosia. At the station, major emphasis is being placed on Derris and Lonchocarpus.

The roots of one of the strains of Lonchocarpus grown at the Puerto Rico station had 20.6 percent rotenone in the principal roots and 5.67 percent rotenone in the lateral roots, or a weighted average for the entire root system of approximately 17 percent which is the highest yield so far recorded for this plant.

On an experimental basis, the station has obtained yields higher than 1,500 pounds of air-dry roots of Derris per acre which compare favorably with good commercial yields in the Far East.

It has been shown at the station that the conditions which are favorable for the most vigorous growth of Derris and the highest yields of roots also result in a higher concentration of rotenone in roots of the same size. Considerable evidence has been obtained to indicate that once rotenone is stored in the roots of Derris it cannot be lost from the plant. An experiment with Derris plants has demonstrated that by growing them on wire trellises, supported by small trees, the yield of roots was increased 75 percent, as compared with the yield obtained from plants grown spreading over the ground in the usual commercial method used in the Malay States. A number of farmers have expressed their desire to make commercial test plantings of Derris. It is expected that 150,000 cuttings will be available for this purpose this year.

Propagating material of Derris and information as to methods of growing it are being made available to neighboring Western Hemisphere countries in order to encourage the development of the production of rotenone crops in these countries, thereby insuring the farmers in the United States of an abundant and possibly cheaper supply of the increasingly important rotenone-containing insecticides. Work is in progress to determine the sections of Puerto Rico most suitable for the production of rotenone-producing plants and to ascertain the effect of the size of cuttings, different quantities of nitrogen fertilizer applied, and different spacings of the plant in the field on the yield of roots and their rotenone content.



Vegetable crops: The tropical climate of Puerto Rico makes it possible to grow in the winter such temperate climate crops as soybeans, field beans, snap beans, lima beans, velvet beans, cowpeas, corn, tomatoes, cucumbers, peppers, eggplant, cantaloupes, watermelons, squash, pumpkins, and okra. This fact indicates that Puerto Rico could advantageously be used to reduce by one-half the time required for plant-breeding and seed-increase programs of many crops developed for use in continental United States.

During the past winter and early spring, seed of two promising new strains of cantaloupes were increased at the station for the University of Maryland and seed of two promising new strains of lima bean were increased for the Bureau of Plant Industry.

Work is planned to determine the seed-producing capacity, best time of harvesting, and rapid methods of drying and curing seed of many crops under Puerto Rican winter conditions. Such information made available by the station would enable commercial seedsmen and seed growers to speed up their breeding and seed production programs to the benefit of the American farmers, as well as provide an added source of income for Puerto Rico. There is an encouraging example of such a development. A farmer in North Carolina sent 13 pounds of seed of a promising new variety of soybean to a Puerto Rico planter for increase last winter and had returned to him 375 pounds of seed for summer planting.

Entomological investigations: In the work of the Puerto Rico station, involving the introduction, testing, and improvement of many different plants of promising economic importance, it was found that a number of them were subject to severe damage by insect pests. Apparently over a period of years a number of insect pests have made their way into Puerto Rico from North and South America, but the predator insects which control them in their places of origin were not present in Puerto Rico. In cooperation with the Bureau of Entomology and Plant Quarantine, the importation of beneficial insects from the countries of origin of various crop pests was initiated in 1936 to establish a biological control of some of the Puerto Rican insect pests. This method is much cheaper than artificial means, such as spraying.

Of the 70 different species introduced in the last five years, 14 are now known to be established, many of which are exerting economic field control. These include: the Amazon fly, which attacks the moth borer of sugarcane and corn; a pineapple mealybug parasite (Hambletonia pseudococcina) which has restored pineapple plantings in the southwest of the island previously abandoned because of mealybug damage; a small wasp from Hawaii which has practically wiped out the avocado mealybug; a small wasp parasite which attacks various species of thrips and has been sent to Florida for trial in the control of certain thrip pests in the southern United States; scale predators which have greatly reduced the bamboo scale and scales attacking economic plants, such as citrus and papaya; and a beetle which feeds on aphids.





Cooperation with other Latin American countries has continued during the past year and material has been sent to Columbia, Guadeloupe, and Cuba. In addition, parasites have been made available to the southern United States for liberation in Florida and Louisiana.

Vanilla: The development of crops of high value per acre is of particular importance to Puerto Rico, inasmuch as there is a population of 544 people per square mile, there is less than three-fourths acre of arable land per person, and agriculture is the main source of income. Crops of high value per acre are often handicapped by the large areas of Puerto Rican soils which are in steep hillsides and are severely eroded and low in nutrients. Vanilla seemed to offer many advantages in meeting this situation. The plants are well adapted to hillside cultivation, they do not utilize great amounts of nutrients from the soil, and money returns per acre have been as much as \$900 to \$1,200 under the most favorable conditions. The continental United States is a promising market for vanilla, as in 1939 it imported over 1,000,000 pounds of vanilla beans at a cost in excess of \$3,500,000. At the present time there is a shortage of vanilla and the price is more than three times as great as in 1939.

The chief difficulty in establishing vanilla production in Puerto Rico has been found to be a root rot fungus disease. As a result of work of the Puerto Rico Experiment Station, supported largely by the Government of Puerto Rico and the Puerto Rico Reconstruction Administration, evidence is accumulating which indicates that if the vanilla is planted in a loose, well aerated, well drained soil and leaf mulch mixed with volcanic gravel or crushed limestone, root rot will not be as serious a limiting factor as previously thought. Work is in progress to develop a new strain of vanilla which will be of satisfactory commercial quality and resistant to root rot.

Based largely upon the preliminary research work of the Puerto Rico station, there are now 454 acres of vanilla plantings in the island for commercial production. Only a small proportion of this acreage has reached fruiting age. It is estimated that a ton of Puerto Rico vanilla beans will be sold this year.

Essential oils: The Puerto Rico station is furnishing technical direction, office, laboratory, and field facilities for research on essential oils, conducted in cooperation with the Government of Puerto Rico, to investigate possible new agricultural crops. Many essential oil plants have been obtained and are under observation at the station, but the chief emphasis has been on the oil of lemon grass which is used to perfume toilet articles, the oil of citronella grass from which menthol is made, bay oil which is used for bay rum, and ylang-ylang which is used for perfume.

Many tropical plants require some degree of shade for their most favorable development. An experiment at the station has demonstrated that the best yields of highest quality oil of lemon grass are obtained by growing the grass in full sunlight.





Experiments with ylang-ylang have demonstrated that topping the trees at a height of 10 to 12 feet above the ground has resulted in an increase in the yield of flowers, from which the perfume oil is extracted, as compared with trees which are allowed to grow normally.

Technical information and propagating material of essential oil yielding plants have been made available, upon request, to other Western Hemisphere countries.

Bamboo utilization: Puerto Rico is lacking in materials at low cost which can be used by the population for farm structures, furniture, and handicrafts. On the basis of developments in other countries, bamboo holds special promise in this regard for Puerto Rico. Bamboo grows luxuriantly in Puerto Rico but the type commonly found here is susceptible to wood boring insects and, as a consequence, has little value for structural purposes. With the cooperation of the Bureau of Plant Industry, 31 species and varieties of bamboo have been imported by the experiment station during the past few years. Some of these types have been found to be highly resistant to attacks of wood boring insects. With the cooperation of the Civilian Conservation Corps, the most promising types are being multiplied through a new technique developed by the station to provide rapid propagation.

Up to the present time, planting material of these superior types of bamboo has been made available in small quantity to the Forest Service. During the coming year, 40,000 plants of these improved sorts of bamboo will be available for distribution throughout the island and for planting on demonstration farms of the Agricultural Extension Service and at vocational schools. The distribution of bamboo propagating material to the vocational schools of the island will provide the vocational students with an opportunity to become acquainted with bamboo and its many uses.

In the station bamboo shop, through studies in cooperation with the Government of Puerto Rico, it has been demonstrated that bamboo can be used for the construction of beds, chairs, tables, desks, picture frames, boxes, and small farm buildings, as well as many other articles that are useful in the home. These developments hold promise for providing a means of raising the standard of living of rural families.

Plant introductions: Since its establishment one of the functions of the Puerto Rico Experiment Station has been the introduction from foreign sources and testing of promising new plants for Puerto Rico and the continental United States. These plants are obtained in cooperation with the Bureau of Plant Industry, by personal contacts, and by exchanges of plant propagating material with research institutions in foreign countries.

The station has introduced almost 7,000 species and varieties of plants of which 4,887 have been introduced since 1935. The permanent plantings of the station now include over 1,600 perennial species of economic and ornamental plants. Once propagating material of a new plant is received, it is increased and, if it shows promise of being adapted, it is distri-



buted to different sections of the island for further and more extensive testing.

Plants which have been introduced by the station and have been found to be of considerable economic value to Puerto Rico have been disease resistant varieties of sugarcane, forage crops such as elephant grass, Guatemala grass, and molasses grass, the Columnaris variety of Arabian coffee from Java which is giving a yield almost double that of the commonly grown West Indian coffee, the best banana and plantain varieties grown on the island, improved varieties of yams, taros, yautias and cassava, teakwood, Venezuelan and Honduras mahoganies, avocado varieties and vanilla. The introduction of the disease resistant varieties of sugarcane at a time when the Puerto Rican sugar industry was in a severe decline, together with improved varieties of cane developed by crossing the introduced sorts with other varieties, are acknowledged by the producers and people of Puerto Rico to have been of almost inestimable value to the island. Particular mention is made of this item as it illustrates the value of plant introductions which, as in the case of sugarcane, far more than pays the cost of the project for many years.

With the cooperation of the National Youth Administration large quantities of plants introduced by the station are being propagated and supplied to the Army and Navy to assist in camouflaging and controlling soil erosion in the new national defense development areas of the island. Present indications are that the Army and Navy will continue to make heavy demands on the station for planting material of introduced plants as long as national defense construction continues in Puerto Rico.



SUPPLEMENTAL FUNDS  
(Complete bureau statement)

Direct Allotments

| Projects   | Allotments,<br>1941 | Estimated<br>allotments,<br>1942 | Estimated<br>allotments,<br>1943 |
|--|---------------------|----------------------------------|----------------------------------|
| <u>Conservation and Use of Agricultural</u><br><u>Land Resources (New Uses and Mar-</u><br><u>kets for Farm Commodities,</u><br><u>Regional Laboratories): Planning</u><br>and coordination of the program<br>of the regional research labora-<br>tories authorized by Section 202<br>of the Agricultural Adjustment<br>Act of 1938..... | \$7,450             | \$13,000                         | \$13,000                         |
| <u>Emergency Relief Appropriations:</u><br><u>Planning and review of W.P.A.</u><br>projects.....   | --                  | 5,640                            | --                               |
| <u>Special Research Fund:</u> states<br>Administration of payments to/<br>under Title I, Bankhead-Jones<br>Act of June 29, 1935.....   | 28,000              | 24,000                           | 23,000                           |
| Administration, including the<br>planning, programming, and co-<br>ordination of special research<br>projects authorized by Title I,<br>Bankhead-Jones Act of June 29,<br>1935.....  | 6,000               | 12,300                           | 12,300                           |
| Administration, including the<br>planning, programming, and co-<br>ordination of special research<br>regional laboratories author-<br>ized by Title I, Bankhead-Jones<br>Act of June 29, 1935.....   | 600                 | 8,200                            | 8,200                            |
| Within-grade promotions-net cost..   |                     | 769                              |                                  |
| Total, Special Research Fund..   | 34,600              | 45,269                           | 43,500                           |
| Total, Supplemental funds.....<br>(direct allotments)  | 42,050              | 63,909                           | 56,500                           |





(d) TOTAL, OFFICE OF EXPERIMENT STATIONS

CHANGE IN LANGUAGE

It is recommended that the following language be added at the end of this paragraph:

and not to exceed \$885 for the purchase of a motor-propelled passenger-carrying vehicle for use outside the District of Columbia.

This addition in language is to provide authority for the replacement in the fiscal year 1943 of a passenger-carrying vehicle which was purchased in the fiscal year 1938.

PASSENGER-CARRYING VEHICLES

The authorization for the purchase of passenger-carrying vehicles for the Office of Experiment Stations contemplates an expenditure of \$885 during the fiscal year 1943 for this purpose. During the fiscal year 1942, three vehicles were operated, but none were traded in.

The automobile is needed to afford facilities for the research staff of the Federal experiment station located at Mayaguez, Puerto Rico, in conducting the work jointly and in coordination with that of the experiment stations of the College of Agriculture of the University of Puerto Rico as required by law. It is essential that the staff at Mayaguez keep in constant touch with the progress of work at the insular stations located at Rio Piedras and Isabela, the insular demonstration farms, and other places on the island. The prosecution of the joint research necessitates frequent trips by the director and technical staff to these points. Poor transportation facilities in Puerto Rico make it essential that automobiles be available so that the research work throughout the island will not be impeded.

Records show that as of June 30, 1941, the car to be replaced had travelled 80,771 miles and it is estimated that it will have travelled at least 20,000 more miles by the time it is traded in. Transportation charges are based on the actual cost of transporting a car to Puerto Rico during the fiscal year 1941.



SPECIAL RESEARCH FUND, DEPARTMENT OF AGRICULTURE

Appropriation Act, 1942, plus \$6,300  
 supplemental for within-grade  
 promotions..... \$1,206,300  
 Budget Estimate, 1943..... 1,150,000

## Change from 1942:

Net reduction in working funds..... - 50,000  
 Reduction in amount available for  
 within-grade promotions..... - 6,300  
 Net decrease..... - 56,300

## PROJECT STATEMENT

| Projects   | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Decrease    |
|--|-----------|---------------------|---------------------|-------------|
| 1. Administration of payments<br>to States under Title I,<br>Bankhead-Jones Act..... | \$ 27,871 | \$ 24,000           | \$ 23,000           | -\$1,000(1) |
| 2. Special research projects,<br>Department of Agriculture...                        | 632,562   | 474,080             | 425,080             | -49,000(2)  |
| 3. Special research laboratories<br>in major agricultural<br>regions.....            | 697,310   | 700,000             | 700,000             | - -         |
| 4. Net cost of within-grade<br>promotions.....                                       | - -       | 6,300               | - -                 | - 6,300     |
| Grand Total Obligations.....   | 1,357,743 | 1,204,380           | 1,148,080           | -56,300     |
| Reimbursements for work done<br>for other bureaus.....                               | - 168     | - -                 | - -                 | - -         |
| Transfer as shown in Budget<br>schedule.....   | + 1,920   | + 1,920             | + 1,920             | - -         |
| Net Total Obligations.....   | 1,359,495 | 1,206,300           | 1,150,000           | - -         |
| Reserve and unobligated<br>balance.....  | 40,505    | - -                 | - -                 | - -         |
| Total.....   | 1,400,000 | 1,206,300           | 1,150,000           | -56,300     |

## DECREASES

The reduction of \$56,300 proposed in this item for 1943 consists of:



A decrease of \$6,300 in the amount of funds available for payment of within-grade promotions.

(1) A decrease of \$1,000 in the amount available for the administration of the \$2,000,000 of Federal-grant funds provided under Title I of the Bankhead-Jones Act of June 29, 1935, for State agricultural experiment stations.

(2) A decrease of \$49,000 in the amount available to the Department for the solution, through research, of special problems basic to agriculture. This reduction will be met by the curtailment of the program of special research projects by discontinuance of the work of 4 projects and deferment of objectives on a number of the remaining projects by a reduction in allotments affecting perhaps 14 projects.

#### WORK UNDER THIS APPROPRIATION

General. Section 4, Title I, of the Bankhead-Jones Act (approved June 29, 1935) provides that 40 percent of the funds appropriated in any one fiscal year pursuant to that Title shall constitute the "Special research fund, Department of Agriculture", and shall be available for (1) administration of the provisions of the Act authorizing payments to States, Hawaii, Alaska, and Puerto Rico for research to be conducted by agricultural experiment stations; (2) special research projects approved by the Secretary of Agriculture and conducted by such agencies of the Department of Agriculture as the Secretary may designate or establish; and (3) the establishment and maintenance of research laboratories and facilities in major agricultural regions of the United States and the prosecution of research at such laboratories. Section 1 of the Act specifies that the work conducted under the Special Research Fund shall be "research into laws and principles underlying basic problems of agriculture in its broadest aspects; research relating to the improvement of the quality of, and the development of new and improved methods of production of, distribution of, and new and extended uses and markets for, agricultural commodities and byproducts and manufactures thereof; and research relating to the conservation, development, and use of land and water resources for agricultural purposes."

Title I of the Bankhead-Jones Act authorizes appropriations for the Special Research Fund as follows: \$400,000 for the fiscal year 1936, \$800,000 for 1937, \$1,200,000 for 1938, \$1,600,000 for 1939, and \$2,000,000 for 1940 and for each succeeding fiscal year. The full amounts authorized were appropriated through the fiscal year 1938. The appropriation was \$1,400,000 for each of the fiscal years 1939, 1940, and 1941. The appropriation for 1942 is \$1,200,000. The estimate for 1943 is \$1,150,000, of which amount \$23,000 is for administration of payments to States provided under Title I of the Act, and under the amended authority in the 1942 Appropriation Act, \$427,000 is for special research projects





in the Department and \$700,000 for special research laboratories in major agricultural regions.

Project I Administration of payments to State under Title I. Bankhead-Jones Act.

Objective: The administration of the provisions of the Bankhead-Jones Act of June 29, 1935, which authorizes Federal-grant funds for the States, Hawaii, Alaska, and Puerto Rico for agricultural experiment stations and which requires that an equal amount be furnished by the various States, Territories, and Puerto Rico.

The Problem and its significance: The administration of these payments to States authorized by the Bankhead-Jones Act differs from administration of the other Acts providing Federal grants for agricultural experiment stations on a number of points, including the following:

- (1) The Bankhead-Jones allotments may not be made to any State, Territory, or Puerto Rico unless offset by at least an equal amount of non-Federal funds for research and facilities for research. This requires the review of the work and expenditures under the offset funds as well as those under the Federal-grant funds.
- (2) The Bankhead-Jones funds for the State agricultural experiment stations are apportioned on the basis of rural population. The Federal-grant funds of these stations provided by previous Acts are on the basis of an equal amount for each State.
- (3) As a part of their research offset, the States, Territories, and Puerto Rico may include expenditures during the year for physical plant and equipment necessary for the prosecution of research. This provision requires administrative responsibility to ascertain that expenditures for physical plant and equipment advanced for offset credit are for research purposes.
- (4) Under the terms of the Bankhead-Jones Act the funds authorized by the Act may be used for physical plant, including the purchase and rental of land and construction of buildings and for the equipment and maintenance of such buildings without limitation as to the portion of the funds which may be used for these purposes. The expenditures, however, must be limited to those necessary for the research under this Act. It is an administrative responsibility, therefore, to approve such expenditures only in relation to the specific needs of the work conducted under the Bankhead-Jones grant funds.

The Office of Experiment Stations is charged with the administration of the payments to States authorized by Title I of the Bankhead-Jones Act of June 29, 1935.



Authorization: The Bankhead-Jones Act of June 29, 1935, was enacted with the understanding on the part of the Department, land-grant institutions, and the committees of Congress that 2 per centum of the annual appropriation under Title I of the Act would be needed to provide the administrative services necessary to make the legislation most effective. By ruling of the Comptroller General after the passage of the Act, the amount available for administration of the payments to States was limited to 2 per centum of the Special Research Fund, which is only 0.8 per centum of the total provided by Title I of the Bankhead-Jones Act.

A further complication in this situation is that Title I of the Bankhead-Jones Act provides that 60 percent of the funds appropriated shall be for grants to States and 40 percent for the Special Research Fund. The appropriations, being separate items, have not always been made in this ratio. Since the fiscal year 1940, the appropriations under Title I of the Bankhead-Jones Act have been made on the basis of more than 60 percent for grants to States and less than 40 percent for the Special Research Fund. If the amounts estimated for 1943 under Title I of the Bankhead-Jones Act had been made according to the ratio provided in the Act, \$25,200 would have been included for administration of the grants to States, whereas the amount is \$23,000. This amount is less than six-tenths of one percent of the estimated \$2,000,000 Federal and \$2,000,000 State offset funds to be administered.

Progress: During the fiscal year 1941, the administration of the provisions of Title I of the Bankhead-Jones Act of June 29, 1935, which authorizes payments for agricultural experiment stations, involved:

(a) Critical examination and approval, in advance of the expenditure of funds, of research projects, there being 1,030 active Bankhead - Jones projects during the fiscal year, of which 185 were either new or revised.

(b) Review in the field of the work and expenditures at the State agricultural experiment stations under funds totaling \$2,400,000, provided under Title I of the Bankhead-Jones act and apportioned on the basis of rural population.

(c) Review in the field of research and research facilities of the stations supported by \$2,400,000 from non-Federal sources advanced as offset credit to meet the requirements of Section 5 of the Bankhead-Jones Act.

(d) Special examination of any expenditures from the allotments under the Bankhead-Jones Act made for the construction, equipment, and maintenance of buildings and purchase and rental of land to ascertain that such expenditures were necessary for the research supported by the funds provided by the Bankhead-Jones Act.

(e) Assisting in coordinating the research under this Federal-grant fund between the State stations and with the research of the Department,





and maintaining advisory relations with the State stations on technical and administrative matters pertaining to research programs and station organization.

(f) Reporting to the Secretary and the Congress on the work and expenditures under this Federal-grant fund.

## Project 2: Special Research Projects, Department of Agriculture.

Objective: The purpose of this project is to make provision for special agricultural research--primarily "into laws and principles underlying basic problems of agriculture in its broadest aspects."

The problem and its significance: Part of the Special Research Fund (48 percent according to section 4 of the Bankhead-Jones Act, approximately 37 percent on the basis of the 1943 estimates) is available to the Secretary of Agriculture for special research projects. This part of the fund was intended primarily to enable the Secretary to undertake studies which are basic to agriculture in its broadest aspects and which may be conducted by such agencies of the Department as he may designate or establish. The act requires that the research under this fund "shall be in addition to research provided for under existing law (but both activities shall be coordinated as far as possible)." There are many problems which arise, the solution of which requires research of fundamental character in order that further progress may be made. The fund enables the Secretary to undertake such work as the need arises, within the limitation of funds available.

Plan of work: In administering, budgeting, and using the Special Research Fund no money is allotted to the bureaus which conduct the research until carefully written project plans and cooperation are outlined in detail and approved by the Secretary. Allotments are adjusted on the basis of changes in relative needs of the projects which are under way.

Examples of progress and current program: During the six years that the Special Research Fund has been available, 88 separate research projects have been undertaken and 51, constituting 58 percent, have been terminated. Of those terminated, 34 were relatively short-time studies designed to provide information for immediate needs. Of the other 17 projects, eight were terminated in three years, five in four years, two in five years, and two in six years. A total of 37 projects, involving nine bureaus, are now under way.

The majority of these 37 projects is concerned with important fields of work basic to agriculture in its broad aspects. Results of practical application are developed and put to use, as in the case of the work on grain storage discussed below. Fundamental data are obtained which may make possible the development of a number of applications of practical importance, as in the case of the work with plant hormones discussed below. As the work progresses, changes in emphasis are made from year





to year. With the completion of work on one phase of a problem, the attack may be directed to another phase requiring solution.

The following are illustrations of progress made in special research projects during the fiscal year 1941:

Grain storage on the farm: The Ever-Normal Granary, crop loan, and crop insurance programs have emphasized the need for complete and accurate information regarding the deterioration of grain under various storage conditions, both on the farm and in commercial-type elevators. Better storage facilities on the farm would aid growers in marketing their grain crops to advantage, in reducing losses from deterioration, and in securing credit on stored grain. There is need for information as to the types of storage structures that will best preserve quality, the maximum moisture content for safe storage for various periods, the development of effective methods for reducing moisture content, and the part played by micro-organisms in the deterioration of stored grains.

In August 1941, there were 173,386,000 bushels of wheat owned in country elevators by the Commodity Credit Corporation, and 1,221,000 bushels of 1940 wheat and 1,221,000 bushels of 1941 wheat under loan. In addition, as of June 30, 1941, there were 238,000,000 bushels of wheat held in commercial elevators. In August 1941, the Commodity Credit Corporation owned and held in storage in country elevators 32,500,000 bushels of corn. There were 34,000,000 bushels stored in terminal and subterminal elevators and 116,275,000 bushels in steel bins. The Corporation also owned 187,000,000 bushels of 1938 and 1939 corn under seal on farms. There were resealed on farms 86,000,000 bushels of 1940 crop. There were in storage in commercial elevators on June 30, 1941, 238,000,000 bushels not owned by Commodity Credit Corporation.

Since high moisture content is a principal factor in the deterioration of wheat stored in bins, work was continued to overcome this difficulty. Pressure-ventilated bins were found to be advantageous in that grain stored in them cooled and dried rapidly. In the northern wheat-growing area, snow became a storage hazard where pressure cowls were used unless care was taken to close the cowls during the winter months or remove them altogether. A small sized dryer suited to farms where the amount of wheat produced is small was developed during the year. In tests this dryer removed approximately 2 percent of the moisture from wheat with 16 percent moisture at the feeding rate of 80 bushels per hour.

In the storage of wheat, a deterioration known as "sick wheat" has often been encountered. The exact causes were not known. In an effort to ascertain what conditions were responsible for this particular deterioration, "sick wheat" was produced experimentally by various combinations of moisture, temperature, and time of storage in the absence of air. It was produced in wheat containing as little as 16.2 percent moisture in sealed containers at temperatures as low as 20 degrees C. with higher temperatures and higher moisture contents, the "sick wheat"

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condition developed much more rapidly. It was found that if grain of high moisture content is placed in unsealed containers, heat damage and the growth of molds rather than "sick Wheat" appear to be the result.

Adverse weather conditions sometimes compel farmers to harvest wheat too green or too wet with subsequent heavy losses due to spoilage in storage. Laboratory experiments with a small quantity of wheat indicated that treating unripe grain with ethylene would produce artificial ripening, which might prevent the treated grain from heating up or "sweating" during subsequent storage. Through an allotment from the Special Research Fund in the spring of 1941, it was possible to make a field test with about 1,000 bushels of wheat. The wheat was purposely harvested too soon and contained over 18 percent moisture so that the test material would be representative of the wheat in which so many losses occurred. Half of the wheat was treated with ethylene and the remainder stored under the same conditions but without treatment. The treated wheat heated up very little in comparison with the untreated grain. The untreated wheat had to be moved over the separator six times to cool it off, but was nevertheless very badly damaged and was worthless within 48 days. The treated wheat, on the other hand, was moved four times (once unnecessarily), did not heat up so much, and was still in good condition. The ethylene treatment of wheat is an inexpensive procedure which so far is particularly promising for overcoming a troublesome problem in the storage of wheat that has been responsible for heavy losses.

Data obtained on the moisture content at harvest time of field samples of corn in various sections of Iowa indicated rather definitely the areas in that State where corn storage difficulties were to be expected. The information was useful in advising farmers when corn was sufficiently dry to be cribbed safely. Data were obtained which make it possible to determine rather reliably the relationship of the moisture content between the cobs and the kernels as a factor in determining the safe moisture content for storage. During the year, it was found that after insects had been eliminated from stored shelled corn by fumigation, reinfestation could be prevented by a practical oil treatment developed for application to the surface layer of the stored corn. Studies are under way to provide ventilation features in corn bins as a means of cooling the corn for the control of insects.

It was reported last year that as a result of the work on corn storage, plans and specifications were prepared for the use of the Commodity Credit Corporation in purchasing steel bins for the storage of shelled corn delivered in liquidation of loans. Over 22,000 bins, having a total capacity of about 60,000,000 bushels, were purchased. These bins, which incorporated the results of the research on corn storage, are considered to be far superior in strength, protection from weather, and serviceability to those following manufacturers' designs furnished previously. The new bins provide the required storage





at a cost of less than 6 cents per bushel of capacity, whereas the bins purchased in 1939 following manufacturers' designs cost 8 cents per bushel of capacity. This reduction in cost amounted to about \$1,250,000 on the bins purchased in 1940.

The experiments on grain sorghum storage started in 1939 were continued in the fall of 1940 by the storage of 3,000 bushels of new grain sorghum artificially wetted with 4 percent more moisture than is safe for farm storage. This grain was placed in storage late in the fall in four different types of bins. The only type which was satisfactory was a special wind-pressure ventilated bin equipped with an 18-inch diameter wind cowl which forced air down a vertical flue to a centrally perforated chamber from where the air escapes through approximately equal distances of grain in all directions upward to the surface of the grain, outward through the perforated walls, and downward through the perforated floor.

Economic relationship of feed consumed to milk produced by dairy cattle:

It is recognized that American farm products will play an important part in the war. Greatly expanded livestock production is needed to provide sufficient food supplies for the increased needs during the present emergency, not only of our own people, but of British consumers as well. This expansion has become one of the foremost programs of the Department. If the needs are to be met, increased production of livestock requires the most economical utilization of feeds. This project was initiated to furnish information for the agricultural adjustment program first as to what extent milk output can be increased by heavier feeding. The same information will tell us in what way production and profits are affected if cows are forced to high feeding levels beyond standard rations and if feeding is reduced well below the normal level.

It has been known for many years that, on an average, cows will return about 2.2 pounds of milk per pound of grain or grain equivalent consumed of a normal ration; it has not been known, however, that no such return is obtained from a pound of grain added to a normal ration. Through input-output experiments on this project it has been determined for the first time to what degree milk output can be raised by increased feeding and how much it will be lowered by reduced feeding. Work during the past year has modified only slightly the preliminary results previously reported. The data show that: (1) The additional return for each extra pound of grain above a normal ration is only about 1.1 pounds of milk--half the average return. At low feeding levels this additional return is more than 1.1; at high feeding levels it is even less. (2) By increasing the feed, 25 percent more milk can be obtained from the present number of cows. (3) Large quantities of additional feed can be converted into milk, with only small loss in efficiency. The results also show us how much feed it takes and what price relationships must prevail to enable farmers to produce the increase. This information is particularly valuable in the present emergency with its urgent need for greatly increased milk production. There is not time to wait for the increase until more cows





can be raised. Although only brief preliminary results have been published, the results are already being used by the Department in answering questions and making recommendations.

The results of this study are not only useful in meeting present emergency problems; they will also be helpful in facing the great problems of readjustment that American agriculture will have to meet in the post-war period when European agriculture is reestablished. The same input-output information is equally useful in any situation that calls for great changes in production, whether it be increases or decreases.

The inter-regional effects of increasing food production: The study of inter-regional competition was instituted to develop information bearing upon practical problems of adjustment in farming within and between regions and the conservation of agricultural resources.

The vital program of the Department of Agriculture in the present emergency is supplying sufficient food for our own and Great Britain's needs. The price floors established for dairy products, hogs, chickens, and eggs, and other associated measures are parts of this defense program. There is need to know what would be the production responses to these measures. Estimates of what farmer supply responses will be in each major region of the United States must be made in advance and revised from time to time as circumstances may change. We cannot wait for a whole production process or cycle to unfold.

A study of milk production indicates that higher prices for milk will not be sufficient to cause production to increase to the quantity desired. Studies of hundreds of farms throughout the dairy region have shown that farmers do not change the amount of their production anywhere as near as quickly as prices change. In addition, costs of production, including feed and labor, are going up and as a result, higher milk prices are necessary in order to guarantee present production. The analyses indicate, therefore, that the most effective method to encourage additional milk production is to provide concentrated feed at a low cost and thereby make production of additional milk very profitable. Large stocks of wheat and corn now in possession of the Government could be used for this purpose. The cost of obtaining the additional production needed would be less in this plan and the farmer adjustment program in the post-defense period would be minimized.

It was found that for the country as a whole 65 percent of the increases in dairy production have been coming from the Dairy Belt, Corn Belt, and the Cotton Belt. This type of information is important to any emergency program for increased dairy production, as it indicates the areas from which more milk can probably be obtained the quickest. The much talked about increase in competition from southern dairymen in national markets is evidently more fear than real, for it was found that consumption of dairy products in the South has increased almost as fast as production. Small herds on small farms have accounted for much of the increase in southern cow numbers and the products have been used largely



for farm family consumption. Other studies have shown a vast potential southern market, for an increase of 43 percent in southern production of dairy products would be needed to bring diets of southern people up to a minimum adequate consumption level.

The information already obtained is being used by the Department in preparing national production goals for 1942. Research procedures and methods have been developed in this study which could be used to quickly obtain similar information for other food products.

Plant growth substances (plant hormones) in relationship to plant production: The outstanding accomplishments achieved with plant hormones in stimulating root growth and flower production with several kinds of plants are well known. Research was undertaken under this project to add to the known usefulness of these substances and to define their limitations.

Last year's report presented a discussion on the use of plant hormones for the control of apple drop. During 1940, one year after the discovery, hormone sprays developed for the prevention of fruit drop as a result of this study were used on 25,000 acres. It is estimated that the sprays will be used on 75,000 acres this year. The following statement from the June 1941 issue of the American Fruit Grower, a paper of national scope, is a further indication of the extent of practical use which is being made of these sprays: "Growers all over the nation will be using the harvest sprays this summer and fall." In addition, this paper presented many future possibilities that may result from the use of hormone sprays, such as prevention of drop in peaches, pears, plums, and apricots; prevention of shriveling in cherries; and delaying blossoms in apples, peaches, and citrus trees.

Within the past six or eight months, sulfanilamide, one of medical science's newest germ killers, has appeared in an entirely different role in experiments on plants conducted under this project. It has been found that solutions of sulfanilamide and related sulfa drugs act like colchicine in speeding up evolutionary changes in plants. The effects, both macroscopic and microscopic, seem to parallel quite closely those produced by colchicine. There was a great increase in size of plant parts, all the way from leaves to pollen grains and a doubling of the normal number of chromosomes. Whether these results of sulfanilamide treatment establish themselves permanently in the plants' heredity is not yet established.

An additional development of practical significance has come from the study of plant growth substances in connection with the production of Easter lilies. As a result of treating Easter lily bulb scales with the drug colchicine, the normal chromosome number 24 has been doubled to 48. As a result, the 48 chromosome Easter lilies bear flowers about one-third larger than normal lilies with much thicker petals which is of considerable economic importance, since such flowers hold up in shipment better than normal ones. The 48 chromosome Easter lilies are more vigorous than normal lilies and bring higher market prices.





Results thus far obtained with growth regulating substances suggest a number of possibilities in the way of further practical applications. These include; (1) improvement or increase in yield of fiber from plant stems; (2) stiffening of plant stems to prevent lodging or to give more upright habit of growth; (3) stimulation of enzyme activity in industrial processes; (4) retardation of the leaf and shoot growth of plants with poorly established root systems or of tubers that later sprout in storage; and (5) control of the length of flower stems and of the succulency and tenderness of certain vegetables.

The effect of certain plant substances on physiological processes in dairy cattle: Dairy farmers ordinarily discard a greater percentage of their cows every year because of breeding and calving troubles than for any other single reason. Cows that fail to get with calf promptly or to deliver a normal healthy calf are costly to keep in the herd, and they seem to be particularly susceptible to such troubles at the ages when they would be most profitable to keep. Breeding and calving problems are consequently of first importance to the dairy industry, which represents nearly \$2,000,000,000 of farm income annually in the United States.

In its experimental nutrition herd at Beltsville, the Bureau of Dairy Industry noted that breeding and calving troubles were particularly frequent among the cows that were fed exclusively on barn rations, and also that such troubles largely disappeared when the cows were put on pasture. Accordingly, it was decided to determine whether or not pasture grass and other green roughages contain some magic substance that affects the cow's reproductive functions; and, if so, to learn the conditions under which such material could be used effectively.

Working with rabbits, the investigators soon discovered that juices extracted from young or immature plants of oats, corn, alfalfa, feterita, and Sudan grass contained a material with power to stimulate ovarian action. One liter of juice from the corn plant contained enough of this material to bring about ovulation in 290 rabbits. This material, however, was active only upon intravenous injection; and although it might be of value in human therapeutics, its value to grazing cattle seemed doubtful.

This year the studies demonstrated the presence of a material in the juices of young oat and corn plants that is effective when fed by mouth. Both male and female rats showed precocious sexual development and activity when the juice was included in the ration. Young female rats reached the estrous stage 17 to 20 days earlier than litter mates that received none of the material. Even young nursing rats showed the effect of the material when it was included in the mother's ration.

The results of the laboratory experiments look very promising from the standpoint of assisting dairymen, through modifications in management, in reducing the breeding and calving problems which have been such limiting factors in dairy farming. The relation of these laboratory results to the effect of pasture on reproduction in the cow has yet to be investigated. Much of the practical value of these materials in plant juices will depend upon the physiological mechanism by which they produce the demonstrated results. They may act like the sex hormones formed by the ovaries, or like





the hormones of the pituitary gland that regulate the functioning of the ovaries, or they may simply bring about the discharge of these hormones into the blood and thus produce the secondary sex reactions that have been observed in this work.

Research to improve agricultural forecasting and estimating methods:

There is a growing demand for greater accuracy and detail in the estimation of agricultural production and related facts than can be obtained from present methods and sources of data. The present emergency situation and defense activities are largely responsible for the increasing demand for exact information. The purpose of this research, which includes a group of related studies, is to discover ways and means of improving the methods of collecting and analyzing statistical data to insure greater accuracy and timeliness in the estimation of crop acreages, yields and quality, stocks, livestock numbers and production, utilization of agricultural products, farm labor, employment and wages, farm size and tenure, land values and rents, production and living costs, and other practical and economic facts relating to the agricultural industry.

The determination of new methods of assembling, summarizing, and analyzing existing data has resulted in the following:

- (a) Development of historic series of estimates of farm employment by major geographic areas since 1924, of milk production by months, of poultry and egg production, together with determination of size and type of sample necessary to obtain poultry estimates with the desired degree of accuracy.
- (b) Determination of basic mathematical concepts inherent in the use of the crop meter as an accurate acreage estimating tool.
- (c) A method for determining the number of questionnaires needed to be returned to afford a given degree of accuracy.

Investigation of new and more objective sampling techniques and new sampling units (other than mail inquiries) have opened new avenues of procedure for estimating crop acreage, farm labor, and other rural economic factors as follows:

- (a) Methods of statistically controlling farm visitation methods of sampling by trained workers and expanding the sample to an estimate have been developed, thus demonstrating the feasibility of taking an annual sample census to obtain a great variety of economic data.
- (b) Sources of bias in acreage estimating by geographic sampling units have been discovered and evaluated, thus permitting acreage estimates to be made with a minimum of error by use of such a sampling method.
- (c) It has been found that some previously accepted sampling units are not efficient in making estimates on a State or smaller area basis.

Analyses of systematic weather and plant growth observations have developed methods or formulae for forecasting the yield of wheat, corn, cotton and other crops in advance of harvest, as follows:



(a) It is entirely practicable by a route method of sampling of the wheat crop just prior to harvest to estimate quickly and accurately the quality, protein content, test weight, yield, and variety by district at a surprisingly low cost. As a result of this research, preharvest wheat surveys have now become a part of the regular crop reporting program.

(b) The number of squares and blooms occurring in July are closely related to the final yield per acre of cotton lint. This will aid materially in improving the official August 1 forecast of cotton- always difficult to make.

Nutritive requirements and physiology of reproduction of bobwhite quail, foxes, and minks. The production of quail, foxes, and minks as a farm enterprise is important to a growing number of farmers. Approximately 350,000 silver fox and 225,000 mink pelts are being produced annually on farms, and there are thousands of farmers interested in raising bobwhite quail. The Department was receiving an increasing number of requests for assistance, such as was furnished in the case of other animals, on special problems of nutrition and breeding for satisfactory reproduction. Studies were undertaken under the Special Research Fund to furnish the facts to meet this need.

In the work with quail, evidence was obtained to show that intestinal disorders among growing quail, such as impacted gizzards, inflamed intestines, and pasted vents may be caused by the mechanical condition of the feed and the quality of the fiber involved. Ground whole oats were not suitable for the feeding of young quail because of the condition of the oat hull after grinding. Of nine cereals tested, millet, buckwheat, and yellow corn, in the order named, gave the lowest mortality. Common salt proved very effective as a curative for cannibalism among quail fed a palatable diet. The symptoms of vitamin A deficiency in growing quail were found to be poor feathering, slow growth, and weak watery eyes that later closed completely and became blind. Visceral gout was also prevalent under such conditions and mortality was high.

Foxes fed rations deficient in vitamin A developed the following symptoms: head "cocking" and head retractions, progressive increases in a general nervous condition, and an abnormal dryness of the eyeball which is characteristic of vitamin A deficiency in other species. There were no observed changes in the fur of the foxes on these diets and the growth rate was good until the appetite failed about two weeks prior to death. In some cases, complete cures were secured if large quantities of vitamin A were administered shortly after the appearance of the head symptoms. If the nervous symptoms were far advanced, a complete cure did not follow the administration of vitamin A, although the animals appeared normal except for the head symptoms.

Fox pups from dams which had been fed a vitamin D low ration, began to show symptoms characteristic of this deficiency in four weeks, when kept away from sunshine and fed on diets deficient in vitamin D and of abnormal calcium-phosphorus ratios. Symptoms characteristic of vitamin D deficiency in other species, namely, leg weakness, swollen joints, bent bones, and "beading" of the ribs, were observed. The administration of either 100 or 200 International Units of vitamin D per 2.2 pounds of body weight per day corrected the vitamin D deficiency troubles. Minks from dams fed a ration low in vitamin D during the suckling period began to





develop rickets in about two weeks when fed a rickets-producing ration in a darkened room. The first gross symptoms noted were difficulties in walking and a tendency to crawl rather than to run. Finally the minks were unable to stand and the spinal column became concave. The addition of 40 International Units of vitamin D to the diet of rachitic minks showed some healing properties. Adding 1 percent of bonemeal or two weeks daily exposure to sunshine was effective in curing rickets in minks.

As an aid in meeting problems of breeding, the basis for artificial insemination of minks has been worked out and tried successfully by several breeders. The data obtained in the study of the physiology of reproduction of minks have formed the basis for recommendations to breeders which hold promise of meeting many troublesome problems of mink breeding.

Work on these lines was discontinued at the close of the last fiscal year.

Improvement of the wool and other qualities of Navajo sheep: It is recognized by people familiar with the economic problems of the Navajo Indians that the income derived from the sale of rugs and wool could be increased if the quality could be improved. The improvement is dependent upon the development of a strain of sheep suited to the wool and other requirements of the Navajos. Navajo sheep are distinctly superior to improved breeds of sheep in their ability to exist and thrive under extremes of climate and sparsity of vegetation such as are found on southwestern ranges. Generations of natural selection in this region, beginning with their early importation by the Spanish, have developed the characteristics of hardiness to a marked degree. On the other hand, the present Navajo sheep are inferior in carcass quality and yield and quality of wool. This project was initiated in cooperation with the Office of Indian Affairs of the Department of the Interior with the objective of combining the good qualities of Navajo sheep with those of improved breeds to produce a type of sheep adapted to many regions of the western United States and best suited to the economic requirements of the Navajo Indian.

Investigations to determine the type of sheep best adapted to the economic needs of Navajo Indians have been completed. Considering the necessity for adaptability of the sheep to local conditions and the limitations of range resources, it has been concluded that the ideal sheep should be of medium size with mature ewes weighing 100 pounds and mature rams about 175 pounds when in breeding condition. Weanling lambs should weigh 50 to 60 pounds at five to six months of age and be of good feeder type. The fundamental characteristics of wool to meet the combined handicraft and commercial needs of the Navajo people were reported last year.





It was reported last year that six small Navajo rugs were subjected to a wear test on the floor of the cafeteria in the Department of the Interior Building, Washington, D. C. The rugs were in excellent condition at the end of the test, which approximated 20 to 25 years service by an ordinary family. The rugs were made of various qualities of wool from the laboratory sheep and different methods of processing the wool were used. The results of the test have been analyzed in the last year. The rugs woven from a one-fourth blood type of wool possessing good uniformity in fiber length and diameter were superior in texture and quality both before and after the wear test. Rugs woven from the best quality of Navajo wool containing no more than 10 percent of outer coat fibers and one percent of kemp (hair) fibers were of better quality both before and after the wear test than rugs woven from wool containing greater proportions of outer coat and kemp fibers. The texture of the rugs woven from the best Navajo wool closely approached that of the rugs woven from the uniform one-fourth blood wool. Wool that yielded the best results in rugs also proved superior when commercially woven into cloth. This is encouraging evidence that it is possible to have a wool suited to both the handicraft and market needs of the Navajo.

In an effort to improve the weaving wool of the Navajo Indians, a cooperative project has been initiated by the Indian Extension Division on the Navajo Reservation. The laboratory will play a vital part in the conduct of this project in furnishing cooperating Indians with suitable rams as they are needed and become available and in assuming responsibility for the technical details of the breeding. In the past year under the terms of the agreement the laboratory has made available one yearling ram and 10 ram lambs. Additional rams will be made available this coming fall. Small weaving wool flocks of 25 ewes and a ram were furnished each of three Indian schools at Phoenix, Arizona, Tuba City, Arizona, and Shiprock, New Mexico, for demonstration and for providing wool for classroom weaving. The laboratory, by this cooperative arrangement, is able to yield immediate benefits to the Indians and has an opportunity of testing the offspring produced in its breeding program.

### Project 3. Special Research Laboratories in Major Agricultural Regions:

Examples of progress and current programs: Nine regional laboratories have been established under the provisions of Sections 1 and 4 of the Bankhead-Jones Act of June 29, 1935, to provide a joint Department and State experiment station attack on problems of regional or national scope. These regional laboratories, which were established and are conducted in each case with the cooperation and participation of the State agricultural experiment stations in the respective regions, serve as focal centers for regional coordination and cooperation of research in the subjects under study by the laboratories. The work of the laboratories is centered especially upon phases of the problem under study which would be difficult or impossible for an individual State or a group of States to undertake.

The following are examples of the progress made and work being conducted at each of these laboratories during the past fiscal year:



Regional research laboratory for research into the heredity and behavior of vegetable crop plants for the development of improved varieties having superior adaptation to the Southeastern region of the United States; (Approved by the Secretary November 30, 1935; located at Charleston, South Carolina). Vegetable crops in the southeastern region have an estimated annual value of \$80,000,000 without including the value of white potatoes and sweetpotatoes. Because of the difficulty of producing products of high quality at reasonable cost under southeastern conditions, there has been a tendency for the States in this region to lose their relative position in production and the value of certain vegetable crops. Artificial methods of disease and insect control are becoming less effective or more expensive. In addition to meeting the need of improving the commercial quality of vegetables, there is need for the development of new varieties particularly adapted for home garden use to protect the general health and well being of both the rural and urban populace of the South and Southeast.

Bacterial blight and lack of cold resistance have been serious limiting factors in the production of snap beans in the region. Last year it was reported several strains of snap beans developed by the laboratory for blight tolerance and cold hardiness were released to the cooperating State stations in the region for trial. Favorable reports on these new strains have been received from most of the stations. Further trials are being conducted and increases of seed are under way so that commercial trials may soon be undertaken.

Analysis of the various strains of snap beans developed at the laboratory have shown a range of from 15 to 35 milligrams of vitamin C content per 100 grams. The reported vitamin C content of standard varieties ranges from 9 to 28 milligrams per 100 grams. Selection of laboratory strains of snap beans having the higher vitamin C content will provide an improved source of this vitamin for human nutrition. Some of the new strains provide a continuous supply of beans for six months, as compared with picking times of three weeks in the spring and three weeks in the fall for standard varieties. The extension of picking time is particularly desired for home garden use.

Cold resistant strains of peas developed at the laboratory were tested at the Virginia Truck Experiment Station at Norfolk. At a temperature of 22 degrees the pods fell off, but the plants survived. All the standard varieties in the test were killed. These strains, which proved to be cold-tolerant, had already been bred as improvements of types suitable for market gardeners.

The increased fertility and high seed yields obtained in cabbage lines bred for cold hardiness at the laboratory suggest the possibility of commercial cabbage seed production by growers in suitable regions of the Southeastern States as an additional source of income. The laboratory is endeavoring to develop strains of cabbage which, in addition to cold hardiness, will have freedom from bolting (the production of seed stocks instead of heads). A cross made between the cabbage varieties Charleston Wakefield





(with good cold tolerance and freedom from bolting) and Volga (with better cold tolerance but susceptible to bolting) has resulted so far in a type with more cold hardness than either parent, but without the desired freedom from bolting. Some of the inbred lines of cabbage are showing very high vitamin C values, as compared with commercial varieties.

It has been reported previously that the laboratory developed a strain of sweet corn with unusually good resistance to corn earworm damage, but lacking in palatability. A hybrid has been produced which has earworm resistance and at the same time approaches the better table types in the desirable qualities of high sugar content and tenderness. It is planned to send seed of this hybrid to the cooperating State stations for testing next year.

In the work of the laboratory to develop tomato plants resistant to defoliation diseases, a technic for artificially causing diseases in the plants has been developed which gives every indication of having general application in work with plant diseases. In the past, it has been necessary to produce spores of the fungus in artificial cultures in order to obtain material for inoculating plants with the fungus disease. The laboratory found that by grinding the mycelium (the mass of small filaments produced by growing fungi) and suspending it in water, an excellent source of inoculation material of the disease resulted. This method of artificial inoculation has the advantage in that all of the material is effective for inoculation purposes, whereas with the previous method only a small percent of spores develop. There is a further advantage in that with the new process the disease develops within 5 to 7 days, whereas when spores are used, 2 to 3 weeks are required.

Work is in progress on varietal reactions of snap beans to cold injury, root rots, mosaic rusts, and blights; on the development of wilt-resistant strains of watermelons; and on the development of tomato plants resistant to defoliation diseases--all of which are of real importance in the production of vegetables in the southeastern region.

Regional research laboratory for research into laws and principles underlying pasture improvement in the Northeastern region of the United States; (Approved by the Secretary February 20, 1936; located at State College, Pennsylvania). Pasture improvement is essential to agricultural betterment in the Northeastern States. It is of primary importance to the livestock industry, particularly dairying. The maintenance of a milk supply more in line with market demands in the northeastern region calls for a more abundant supply of feed as a means of reducing costs. Pastures in the year-round program of the dairy farm afford the cheapest source of feed and produce the most profitable returns. Milk production in this region in recent years has been insufficient to meet the needs caused by a steady increase in urban population. The inadequacy of the milk production is due chiefly to normally low feed supplies, a generally short pasture season, and a low carrying capacity of pastures. It is apparent, therefore, that pasture improvement is one of the most promising means of improving the dairy industry in this region. It is directly related, furthermore, to control of erosion and watershed protection.





The program of the laboratory was designed to discover, or produce by breeding, pasture plants that will recover quickly from defoliation, either by grazing or clipping for hay production, and that will have such other desirable characters as palatability, high nutritive content, and persistency. In order to achieve these ends, the laboratory has found it necessary to develop technics for breeding and for measuring the results obtained. The program includes studies of the chemical composition of pasture plants and how it is affected by diseases, and studies of the effect of various environmental factors, such as light and temperature, on the growth and composition of the plants.

Grazing tests of about 1,800 Kentucky bluegrass plants indicated that statistically significant differences in palatability occurred. When the white clover sod plats established by the laboratory were clipped five times for yield during the past growing season, wide differences were obtained between plants in the total yield of dry matter. Breeding tests with the nine highest yielding plants in the sod plats showed that the plants varied considerably in the transmission of vigor to their progenies. In orchard grass, the average vigor of the first in-bred generation families, as compared with their respective parental strains, varied from 35 percent for one family to almost 100 percent for two families. These findings indicate the desirability of selecting breeding material on the basis of progeny testing.

The laboratory is studying the effect of day length on the growth of various species of pasture plants. Available evidence shows that length of day determines the production of a given species and the seasonal distribution of that production. Day length, furthermore, apparently determines the date of maturity of plants after which the nutritive value and palatability of plants decreases rapidly. On the basis of such information, it may be found desirable in practice to use both long-day and short-day plants to give a good distribution of available pasture throughout the grazing season.

Data obtained in a study of the effect of increasing the number of chromosomes in strains of perennial ryegrass under various defoliation treatments indicate that doubling of chromosomes would not necessarily affect the growth or composition of the plant. Doubling the number of chromosomes in white clover decreased the carotene (vitamin A) content. These data suggest that the doubling of chromosomes is not a particularly promising means of improving these species.

From a study of 18 strains of Kentucky bluegrass grown at three levels of nitrogen fertilization, it was concluded that there was a strain difference in the way the plants responded to different levels of nitrogen nutrition. Protein differences between plants were found to be associated in large part with the date of flowering and were therefore associated with the response of the plant to day lengths. Late flowering plants were higher in nitrogen during the aftermath stage in the field than early flowering plants. The information obtained in this study will be useful in the selection of plants on the basis of their response to nitrogen fertilization and will be helpful in supplementing the work done in regard to the effect of day length on pasture plants.



The laboratory found that both natural soil phosphorus and added phosphate appeared to be fixed in the soil by incubation of the soil for two months in a greenhouse where the temperatures in the day sometimes reached 110 degrees F. From a practical standpoint, the above finding indicates that phosphate fertilizer should be applied to pasture at a time not likely to be followed by hot weather because otherwise the phosphorus will probably not be available to the plants. The calcium and phosphorus content of white clover strains was not materially affected by the amounts of these elements in the soils on which the plants were grown.

Seven of the 12 State experiment stations in the northeastern region have developed cooperative research projects that are supplementing the studies in progress at the laboratory. Breeding work with Kentucky bluegrass is being conducted at the West Virginia and Pennsylvania stations, with white clover at the New Jersey and West Virginia stations, with orchard grass at the Maryland station, and with bent grass at the Rhode Island station. The chemical composition of pasture plants is being investigated at the New Hampshire station. Overliming injury is being studied at the Connecticut (Storrs) station. A study of the fungus disease, snow mold, is in progress at the Pennsylvania station.

Regional laboratory for research into the industrial utilization of the soybean and soybean products in the North Central region of the United States; (Approved by the Secretary, February 20, 1936; located at Urbana, Illinois). The soybean continues to increase in importance to both agriculture and industry. There has been a rapid continual increase in acreage planted to this crop in the past 10 years. Because of the high oil and protein content of the beans, they are adapted to a wide variety of industrial uses and their potentialities are just beginning to be realized. Since the crop is extremely sensitive to environmental factors which modify its composition, it is essential that agronomic and genetic research be conducted as a means of satisfying industrial requirements.

During the year the laboratory experimentally prepared and tested, for durability, drying speed, and other properties, numerous paints and varnishes containing soybean oil. A number of formulas for traffic or centerline paints have been developed using soybean oil in the varnish vehicle. These formulas are being tested locally and by the Highway Department of a middle western State. Durability tests on paints made from 100 percent soybean oil as the vehicle have shown that it compares well with linseed oil. These findings on soybean oil paints have been an important factor in the offering by commercial organizations of a soybean oil paint paste to be mixed with an equal amount of soybean oil to produce an exterior paint for farm buildings. In the tests, soybean oils now available as paint vehicles had a slower drying speed than linseed oil under identical conditions.

The laboratory, through the use of different procedures, has been attempting to obtain a soybean oil which will have the drying properties of linseed oil. The work of the laboratory on one of these procedures has resulted in the development of an inexpensive process for fractionating soybean oil into two parts. One of the parts is a relatively high





unsaturated oil with excellent drying properties and the other is a relatively high saturated oil with value as an edible oil. The commercial application of these developments should increase the utility of soybean oil in the drying oil field and replace shortages in imported drying oils, particularly tung and linseed oil, during and after the present emergency. The development of the use of soybean oil in the drying oil industry should have the effect of decreasing the amount of soybean oil which is used as an edible oil and thereby lessen the competition with other edible oils.

Water absorption is a difficulty which has been encountered in the mixed soybean-phenolic resin plastics. The laboratory has been successful in reducing the water absorption in these plastics from four to about one-half percent by improving the method of compounding the molding powder. The addition of soybean meal was found to improve the impact strength and to decrease the weight of phenolic resin plastics. The lower water absorption, the increased strength, and the reduced weight obtained in mixed soybean phenolic resin plastics are of importance to industry and are the basis of an increased commercial interest in, and use of, soybean meal and meal products in the manufacture of plastics. This progress is particularly timely as there are shortages of phenolic resin and other types of plastics. A patent has been granted for a soybean protein laminated plastic with properties comparable to, and which can be produced cheaper than, existing synthetic resin laminated plastics.

Last year it was reported that the laboratory had developed a size for glassine paper. The work of the laboratory during the year has demonstrated that the soybean protein, when properly treated, can be used successfully for a paper coating. A patent application has been prepared for a process developed at the laboratory by which soybean protein paper coatings may be bleached or whitened and made equal in whiteness to the casein coatings now in use. The coatings made from soybean protein are somewhat more oil resistant than casein coatings. The potentialities for substituting coatings made from soybean protein for casein coatings is important in view of the present greatly increased demand for milk in edible form.

In the agronomic work of the laboratory, attention has been directed toward the improvement of the oil content and iodine number of the oil in soybean seed. In cooperation with the State stations in Ohio, Indiana, Iowa, and Missouri, attempts are being made to develop strains or varieties adapted to environmental conditions over a wide latitude of soil and climate. As an aid in furthering the field plot technic of this phase of the program, a nursery planter, a portable nursery thresher, and an improved seed cleaner suitable for soybean production have been developed during the year.

Preliminary studies on the inheritance of percentages of oil and protein and degree of unsaturation of the oil indicate that the hybrid tends to be intermediate between the parents in these characteristics. In a few cases, however, the hybrid was higher than either of the parents or lower than either of the parents. Data accumulated to date indicate





that selection from hybrid material holds promise for improvement in the composition of soybeans. The fertility level of the soil was found to have no appreciable effect on the relative order or rank of the varieties tested with respect to percentages of oil and protein.

Regional research laboratory for the improvement of swine through the application of breeding methods; (Approved by the Secretary December 22, 1936; located at Ames, Iowa). The swine industry is one of the major agricultural enterprises of the Nation; it supplies approximately one-half of the total tonnage of meat produced in the United States and produces approximately one-fourth of the farm income in the Corn Belt States. Purebred swine have been responsible for the improvement to date in market hogs. During recent years, however, progress has been slow in improving the economic characters which are highly important to the producers. Discoveries and their application in the fields of nutrition, disease control, and management practices with animals have been of great benefit to the swine industry, but they have not solved the problem of further improvement of such characters as feeding quality, fertility, vigor, and carcass merit. The laboratory is attempting, through research, to develop breeding procedures which, when applied, will aid materially in further improving swine so as to make them more efficient in the hands of the producer and more suitable to the preferences and demands of the consumer.

As pointed out last year, the laboratory is developing inbred lines of swine in order to fix the inheritance of such economic characters as are desired in any one line. The inbred lines in the program, which are maintained at the cooperating State stations, now include 23 lines of Poland China, 10 lines of Duroc Jersey, 3 lines of Hampshire, 1 line of Chester White, 1 line of Danish Landrace, and 2 lines of a crossbred foundation. The breeding herds total approximately 760 sows and 100 boars. A total of 678 litters were farrowed in 1940.

The laboratory inbreeding program is being conducted with two points of view in mind: (1) To develop and test inbred lines which, when used systematically by breeders and farmers, may result in specific improvement of non-inbred stock, and (2) the development of procedures in breeding which may be used by breeders and producers themselves in improving the effectiveness of their efforts in swine breeding.

The results obtained with one line of crossbreds have been quite encouraging. It has been demonstrated that a favorable degree of desirable uniformity can be obtained within four generations in crossbred stock through moderate inbreeding and critical selection. A farmer who obtained some of the above animals from the Minnesota station wrote as follows:

"Thought you might be interested in knowing that the new type gilts that we bought at the Grand Rapids Experimental Farm last fall were coming along fine. In fact they are outdoing our Hampshires that were about the same size when we bought them in November.



"I am very well pleased with their performance thus far, and feel that they have a real future before them, thanks to the experimental work at the University station. May this good work continue in developing new and better breeds of stock and crops."

The large number of animals required for a satisfactory attack on the problems of breeding of swine accounts for the little work done in the development of breeding procedures for the improvement of swine before the inauguration of the laboratory program. The laboratory, through the cooperation of the agricultural experiment stations in the north central region, has a sufficiently large number of animals in the program, but, because of a lack of previous work, has had to devote attention to the development of research technics, including evaluation of the factors in breeding. Definite progress has been made in certain phases of this work during the last fiscal year, as follows:

Contrary to the accepted idea, the results of the program thus far have shown that by careful selection of breeding stock within inbred lines it is possible, without loss of practical merit, to concentrate desirable characteristics at least 8 to 15 times more rapidly than is practiced conventionally. In some of the inbred lines, the laboratory has attained an inbreeding coefficient of 0.30, which is about three times as high as the degree of inbreeding in the present pure breeds of swine. This leads to the expectation that outstanding improvement will be shown in the qualities sought when some of the highly inbred animals are outcrossed or crossed with other inbred lines.

A chemical test for pregnancy has been developed which permits accurate diagnosis of pregnancy in swine between the 22nd and 32nd day of gestation. This will be especially useful in the experimental breeding studies, such as those in progress at the laboratory, by providing a reliable means of determining the success of matings within a reasonably short time.

The laboratory has found that approximately one-fifth to one-fourth of the variance in the live animal scores of swine at market weight of 225 pounds is due to differences in the heredity of the animals of the same parentage. Likewise, differences in heredity were found to be responsible for 30 percent of the individual variations in the growth rate of pigs to 180 days of age. These findings indicate the extent to which natural differences that occur in offspring of the same parents must be taken into account in evaluating observable characters as a basis for selection in swine.

Regional research laboratory for the improvement of sheep for Western ranges through the application of breeding methods; (Approved by the Secretary February 24, 1937; located at Dubois, Idaho). Production of sheep for meat and wool is necessary for the economic use of a considerable part of the grazing lands of the western range region, which contains about two-thirds of the breeding sheep of the United States. New strains of sheep more efficient in wool and lamb production than those now existing are needed to continue this important agricultural enterprise on a profitable basis.





As reported last year, inbreeding has been generally practiced in the laboratory program as a means of concentrating the most desirable characters in the shortest possible time for the development of improved strains of sheep. During the past year there were 36 inbred lines in the laboratory program. Studies of important characters, such as body weight, length of staple, and clean weight of fleece, in 15 of the more inbred lines have shown so far no consistent change with increasing degrees of inbreeding. It appears that the laboratory sheep will endure considerable inbreeding before their commercial value is lowered materially. The fact that desirable qualities have been maintained to the extent they have so far in the inbred lines is particularly encouraging as to the ultimate success of the program. Experience with corn has shown that inbreeding usually produced inferior lines which, however, when crossed with other suitable inbred lines, result in high producing hybrids.

The laboratory is making progress in developing a line of sheep with ability to transmit increased length of staple and increased clean wool yield to their offspring. The 1940 yearling ewes in this line produced fleeces with a staple length of 2.67 inches, as compared with an average of 2.24 inches for the other yearling ewes at the laboratory. The ewes with the longer staple exceeded the average of the clean wool production of the other ewes by 0.72 pounds, although the difference in grease wool amounted to only 0.4 of a pound.

The open face character is highly desirable in range sheep. Sheep with wool covering on the face often become wool-blind so that they cannot see to feed properly and, therefore, are handicapped, as compared with sheep with a more open face. Wool-blind sheep must be clipped periodically around the eyes. This clipping is troublesome and an additional expense. The laboratory has found that the open face character appears to be highly heritable. This finding is important in indicating that sheep may be bred to eliminate wool covering on the face. It has been found over a period of years that ewes with open faces have the added advantage that the lamb production per ewe at weaning time is 6 to 8.5 pounds more, as compared with the production of sheep with covered faces.

Heavy skin folds in sheep are considered objectionable by many producers because the folds present difficulties in shearing and they are of no advantage whatsoever from the standpoint of wool or meat production. Elimination of this undesirable character is one of the aims of the laboratory breeding program. To accomplish this, breeding animals were selected on the basis of their ability to produce offspring with the least number of skin folds. As a result of this selection and breeding, about 59 percent of the weanling lambs produced in 1940 were smooth or had only a few small neck folds. The progress made so far is an encouraging indication that skin folds may be eliminated in the laboratory sheep.

Last year it was reported that yearling records were of value in estimating lifetime merit in sheep. Further work along this line was conducted at the laboratory during the past year to determine more specifically the reliability of this system. It was found that ewes which were heavier as yearlings consistently weaned more average pounds of lamb per ewe-year during their lifetime than did the light





The work of the laboratory with another group of ewes showed that the animals in the group that were heaviest as yearlings had a lifetime average fleece weight of 0.8 of a pound higher per year than that of the ewes which were lighter at the same age. These indications of the reliability of using yearling records as a basis for selection of desirable ewes are of value in the conduct of the breeding program of the laboratory and are of practical significance to the sheepmen in providing a guide to more efficient culling.

The results to date indicate that the ewes rated as the heaviest milkers usually have the heaviest lambs at birth and also at weaning time. They also appear to have a higher percentage of lambs at weaning time. Rating for milk production appears to have value for selection of breeding stock.

The interest of commercial sheepmen in the program of the laboratory is indicated by the visit during the year of representatives of the National Wool Growers Association. After an examination of the sheep, they expressed real satisfaction in the definite improvement being made in the development of strains of sheep which are breeding true for freedom from wool blindness, good length of staple, and wool of satisfactory fineness and density. They were favorably impressed with the general size and conformation of the laboratory sheep.

Regional laboratory for study of the mechanism of infection in the contagious, infectious, and parasitic diseases of domestic animals and poultry, and methods of control in the Southeastern region; (Approved by the Secretary, February 24, 1937; located at Auburn, Alabama). The long grazing season and the short winters of the Southeast appear to make this area highly desirable for the most economical handling of livestock. Under practical conditions, however, the very factors that seem to favor livestock also favor the diseases and parasites attacking the animals. In addition to large direct losses, many losses from disease and parasites are of an intangible nature and are reflected in terms of the stunting of young animals, failure of growing animals to make proper gains, decrease in the production of meat, milk, wool, and eggs, low efficiency of work animals, and uneconomic utilization of feed. Because Johne's disease and gastro-intestinal parasites, particularly coccidiosis, of all domestic animals were problems of major significance in the region, the laboratory selected these problems for initial study. Results obtained in these studies will be basic to the knowledge and control of other diseases and parasites of domestic animals.

An extensive study, involving repeated examinations for coccidial infection, was made of the calves in four herds in Alabama and Georgia. In one of these groups, a 50 percent mortality due to the infection was reported. Numerous severe, but non-fatal, infections were demonstrated. In 20 herds visited less frequently, 94 percent of a total of 129 animals were found to have coccidiosis. Results of these field studies brought out the fact that early infections, namely, 2 or 3 weeks after birth, were more likely to prove fatal or to adversely affect growth than were later infections. To determine the susceptibility of older calves to infection by coccidia, single massive doses of various species of coccidia



were administered to 6 calves with the result that serious experimental cases of coccidiosis were produced in all of the animals, four of which were over six months old. These results indicate that age as such, contrary to prevailing conceptions, does not protect the animal against excessively large numbers of coccidia. In two dairy herds which had previously suffered severe losses from coccidiosis, marked reduction in the number of cases of and fatalities from coccidiosis resulted by applying the recommendations of the laboratory which include the segregation of calves by ages (particularly protection of calves less than three weeks old from older animals) and the frequent removal of contaminated bedding.

The drug phenothiazine was found to be an efficient and non-toxic destroyer of intestinal worms in two field tests with cattle. This drug was equally effective when given with or without preliminary fasting or when given by capsule or mixed with the feed. Doses of 40 to 60 grams of phenothiazine given to yearlings weighing 175 to 300 pounds were effective in removing such parasites as stomach worms, intestinal worms, hook worms, and nodular worms, whereas unsatisfactory results were obtained with the usual treatment consisting of doses of 3 to 5 ounces of 1.5 percent of copper sulphate and 0.6 percent nicotine sulphate solution. The anemia associated with heavy infestations of parasites disappeared following removal of the parasites with phenothiazine. In experimental infections, doses of phenothiazine which were effective against the mature stomach worm were found to remove some, but not all, of the worms which had not yet matured. This means that additional treatments may have to be administered to remove the worms that subsequently mature. Data were obtained which show that the larvae of various species of stomach worms were capable of remaining infective on pastures in the vicinity of the laboratory for at least 6 months during the fall and winter. This indicates that, even though cattle may be rid of stomach worms through drug treatments, there is danger of reinfection unless the larvae of the worms are removed from the pastures.

A survey test for Johne's disease made in 8 States during the last year disclosed that johnin reactors were present in a majority of the herds tested and that a relatively high percentage of animals will react to the intradermic johnin test. Of 5,436 cattle tested, 14.2 percent showed positive reactions and 1.6 percent gave suspicious reactions to intradermic johnin tests. Positive reactions were also obtained in 35 percent of 230 sheep tested, 39 percent of 56 swine, and 96 percent of 30 equines. Post mortem examinations were made of the intestinal tracts from 391 cattle, among which were animals which had reacted positively, suspiciously, and negatively to the intradermic johnin test. These post mortem examinations disclosed that a large percentage of the animals which did not react to the johnin test had the advanced stage of a pathological condition formerly considered as evidence of Johne's disease. This finding suggests that this observable pathological condition may not be due to Johne's disease.

A microscopic check of the intestinal scrapings of 209 cattle which did not react to the johnin test revealed that the johnin test had failed to diagnose Johne's disease in only 8 percent of the cases. This percentage is considered unusually good for a diagnostic agent.





Regional research laboratory for the improvement of viability in poultry; (Approved by the Secretary December 23, 1937; located at East Lansing, Michigan). The high mortality among adult chickens is responsible for an annual loss of around \$100,000,000 in the poultry industry in the Northeastern and North Central States. Approximately one-half of this loss has been ascribed to a disease complex (fowl paralysis) the most prominent manifestation of which is a partial or complete paralysis of the legs or wings of chickens. In addition to the losses incurred in mortality there is a great reduction in the egg production of the affected birds. The cause, methods of transmission, and control of this limiting factor to a more profitable poultry industry are not known.

Other indications of this disease complex manifest themselves in the ocular system, the nervous system, the visceral organs, and the reproductive system. These manifestations may occur singly or in combination. It is not known whether these pathological conditions are different manifestations of one disease or whether they are different diseases. The laboratory has in progress studies on the cause of the disease complex, its method of transmission, and the development of control measures. The answers to these questions are being approached through research in breeding, pathology, nutrition, and management.

Because of the unknown nature of this disease complex, it has been necessary to pay special attention to methods of diagnosis. It has been determined by a study of 1,000 cases at the laboratory that, although post mortem examinations prove to be almost 100 percent accurate for positive cases, between 20 and 25 percent of what appear to be negative cases on examination with the naked eye prove to be affected with the disease when examined microscopically. This variation between gross and microscopic study emphasizes the need for microscopic examination when gross autopsy fails to reveal lesions of the disease.

In the work of the laboratory on this disease complex, it has been possible by rigid quarantine and sanitation measures to exclude such common poultry diseases as fowl pox, respiratory infections, and external and internal parasites from the chickens on the control side of the plant. In spite of these measures, it has not been possible to prevent the occurrence of this disease complex among some of these chickens. Because this disease may be transmitted by an affected hen through the egg, it may be assumed that none of the known sanitary procedures would have been effective even under the environmental conditions maintained at the laboratory. In view of this, careful selection of the breeding stock has been resorted to as a means of reducing the disease among the control chickens. The breeding stock producing these chickens last year consisted of individuals whose full brothers and sisters had the fewest number of cases of this disease complex after inoculation. As a result, the losses among the chickens on the control side of the plant during the last fiscal year were 8.5 percent, as compared with 12.9 percent in the previous fiscal year. Studies of the cause, methods of transmission, and control of the disease complex can be pursued with greater success when disease-free stock is developed.





The breeding work of the laboratory has demonstrated during the past two years that there is a high degree of variability among families of chickens and among individuals of the same families with respect to resistance to the disease. This finding indicates that the breeding value of a bird with respect to resistance to this disease complex, as well as with respect to other desirable commercial qualities, may only be determined by testing the progeny.

Thirteen of the 25 State experiment stations have developed cooperative research projects that are supplementing the studies in progress at the laboratory. The viability of chickens from laboratory stock is being determined under different environmental conditions at the North Dakota, New Hampshire, Ohio, Oklahoma, and Indiana Experiment Stations. Breeding studies with reference to improving viability are in progress at the Illinois, Maryland, Massachusetts, and Pennsylvania stations. Investigations in pathology are being conducted at the Connecticut (Storrs), Iowa, Indiana, Michigan, and West Virginia stations. Nutrition and anatomical studies are also being conducted at the Michigan station.

Regional laboratory for investigations of the relationship of the salinity of irrigation waters, and of soil conditions, to plant growth and related factors involved in a permanently successful irrigated agriculture in the Western region; (Approved by the Secretary December 23, 1937; located at Riverside, California). The work of the laboratory in the comparatively short time since its research was started holds promise of improving the situation existing on approximately 9,000,000 acres of irrigated farm land, the productivity of which has been seriously impaired or threatened by excess accumulation of soluble salts. Good drainage and leaching are essential to meet this problem by preventing excessive accumulations of salts or by removing salts when the amount present is high. As explained last year, the work of the laboratory to solve the problems of salt constituents in irrigation water and in naturally saline soils has required the development first of new research technics for use in these investigations of an agricultural problem upon which little previous work has been done. Progress has been made in this direction in the last fiscal year.

The success of drainage and leaching is largely determined by the character and thickness of the ground strata as they affect the movement of water used for drainage and leaching. It is not possible to determine these underground conditions from observations at the surface. To overcome this difficulty, the laboratory has developed a specially designed hydraulic probe which has been operated to depths exceeding 30 feet. It is believed that data obtained with the use of this instrument will greatly facilitate the planning of improved drainage systems.

The progress of salt concentrations is often so imperceptibly slow that the problem may not be recognized until the usefulness of the soil has become seriously impaired. Prevention of this condition is dependent upon recognition of salt concentrations at an early stage. Satisfactory methods have been previously developed for determining these concentrations in lighter soils and at the higher moisture contents, but these methods have not given satisfactory results for the heavier soils and at the lower moisture contents. Both of these difficulties have been overcome by a pressure membrane extraction apparatus developed by the laboratory for obtaining soil solutions.



In order to determine the effect of saline solutions on the plants grown in them, the laboratory analyzed the expressed juices of the plants. In general, the amount of an element in the plant juices became greater as concentrations of that element were increased in the nutrient solution. All kinds of plants, however, do not react in the same way to increased concentrations of elements. For example, in the case of the sugar beet, little calcium was found in the juices even when plants were grown in a solution of high calcium content; and in the case of milo plants, no response was shown to the varying amounts of sulphur in the culture solutions.

The laboratory has in progress an experiment to determine what concentrations of salts young peach trees can tolerate. During the first year, the growth of Lovell and Shalil tops on Elberta rootstocks was reduced markedly at concentrations of sulphate salts of about 9,000 parts per million.

The results reported last year that reduced growth is caused by concentrations of salts exceeding 1,000 to 3,000 parts per million of nutrient solutions in the case of eight common crops have been substantiated during the past year by experiments on additional crops.

The work of the laboratory has shown that some crops, such as onions, alfalfa, wax beans, carrots, squash, and tomatoes, are adversely affected more by saline irrigation waters in hot climates than by the same irrigation waters in cooler climates.

Regional research laboratory for research into the relation of soils to plant, animal, and human nutrition: (Approved by the Secretary January 31, 1939; located at Ithaca, New York). While the role of such elements as calcium, phosphorus, sulphur, sodium, and chlorine, used in relatively large amounts by animals and man, have been fairly well understood for many years, another group of so-called trace elements are equally essential although needed in only small amounts. Deficiencies of some of these trace elements in the diet are known to be associated with nutritional disturbances, but the information in many cases is inadequate and the role of a rather long list of elements in regard to animal and human nutrition remains in doubt, chiefly because of insufficient study.

Many or all of these elements are generally supplied to the body through plants consumed as food. In the past these elements were present in most soils in quantities sufficient to supply the needs of the plants and also the animals which ate them. In certain areas the quantities have been so reduced by crop removal with no replenishment that the deficiencies are now becoming acute. The laboratory is attempting to ascertain the effect of deficiencies in these elements in the soil on the plants grown on them and the effect in turn on the animals and humans consuming the plants. The information obtained should be of benefit in animal and human nutrition because of the possibility of replenishing these elements through direct application of fertilizers containing them and through other agricultural practices.





For a study on cobalt, the laboratory developed suitable apparatus and technics for producing herbage very low in this element. Bluegrass, barley, red top, and other forage crops were grown in specially prepared nutrient solutions which were as free of cobalt as it was possible to obtain. The resultant plant material was so low in cobalt that present methods of analysis were not sensitive enough to indicate its presence, which means that the concentration of cobalt in the material was less than 1/100th of a part per million.

The laboratory has been studying the problem of the inadequacy of existing methods for determining the presence of cobalt and has developed a new color reaction which promises to be successful for measuring cobalt even when the quantity is less than 1/100th of a part per million.

As a part of the study of the influence of the mineral nutrition of plants on the nutritive value of food crops, several thousand tomato plants were grown in the greenhouse, using 56 different nutrient solutions. The growth of the plants varied markedly, depending upon the composition of the nutrient solution, and the amount of fruit produced was correlated rather closely with the amount of growth. The various treatments had little influence on the concentration of vitamins A and C of the fruit. The above work is being repeated outside the greenhouse, using 1,200 genetically pure tomato plants and 87 different nutrient treatments. Results obtained to date indicate that plant growth, fruit production, and rate of maturity of fruit can be directly correlated with the composition of the nutrient solution.

The laboratory has ascertained that the vitamin B<sub>1</sub> content of various foods may be determined accurately through the use of the fungus assay method. Analyses of tomato samples by the fungus assay and the rat assay methods have shown close agreement. The fungus assay method is not only accurate but has the advantage that a single person can run a very great number of analyses with relatively little trouble or expense.

In an effort to evaluate the comparative efficiency of plants in their ability to make available as food the elements derived from the soil, the laboratory, in cooperation with the Division of Cereal Crops and Diseases, has made a study of the possible relationship of chromosome number of corn to nutritive quality. The plants used in this study consisted of the diploids (having the usual number of chromosomes) and related tetraploids (having twice the usual number of chromosomes) of various stocks grown in the field in uniform soil. The data suggest that the tetraploid kernel, in some stocks at least, is higher in carotene (vitamin A) content than is the diploid. The leaf samples either showed no difference or an indication of a lower content of this nutritive factor in the tetraploid form. Analyses for nitrogen content indicated clearly that both the kernels and the stover of the tetraploids are higher in this nutrient than are the corresponding parts of the diploids. These results indicate that controlling the chromosome number may result in the development of more nutritious types of corn.





Samples of alfalfa obtained through cooperation with the New York Cornell Experiment Station were analyzed for their carotene (vitamin A) content. The alfalfa grown on a soil low in boron contained 20 percent less carotene than that grown on similar soil treated with boron. This finding indicates the significant role which may be played by mineral constituents of the soil on the vitamin content of plants.

#### PASSENGER-CARRYING VEHICLES

The 1943 estimate for the purchase of passenger-carrying vehicles for work under the Special Research Fund will permit the needed replacement of three automobiles at an average cost of \$635 each when exchange allowances are taken into account. This is a reduction of one car below the number estimated for purchase in the fiscal year 1942.

At least one car is essential for each regional laboratory to enable the technical men to visit the different parts of the region, including the State experiment stations located therein, all of which are cooperating in the laboratory projects of their region. In the case of laboratories established in the larger regions covering a wide area, those involving extensive cooperative relationships and those including the work of more than one bureau, two or more cars may be required to enable the technical men to visit the different parts of the region. Automobile transportation is also necessary in connection with field projects conducted under this fund in the case of those investigations for which common carriers are not available, are impracticable, or are less economical.

Two of the cars to be replaced are for regional laboratory use under section 4 of the Bankhead-Jones Act of June 29, 1935, and the third car is for use on a field project working on the development of breeds and strains of sheep suitable to the Southwest and operating under section 1 of the Act. One of these cars has been in constant use since 1937, once since 1938, and one since 1939. These machines have been operated over a wide variety of conditions of use, ranging from city streets to rough country roads. The car purchased in 1939 has been subjected to particularly severe use while operating in the southwestern range area over very rough mountain and range trails. It is estimated that the average performance of these cars by the time they are turned in will be approximately 43,000 miles. Past experience has demonstrated that cars cannot be operated efficiently or economically beyond this age and mileage and it appears to be distinctly in the best interests of the work to turn them in during the fiscal year 1943 as herein provided.



EXTENSION SERVICE

THE ESTIMATES FOR FISCAL YEAR 1943

The estimates for the Extension Service are divided into two parts, (1) "Payments to States and Territories", and (2) "Salaries and Expenses", composed to two items providing funds to be expended in Washington for the maintenance of a supervisory and clerical staff for the general administration and coordination of extension work and a technical and clerical staff for the preparation and distribution of extension educational information.

(1) Payments to States and Territories

With reference to payments to the States and Territories, the entire amount is paid directly to a designated officer in each State and Territory in accordance with the various acts of Congress, and the funds are disbursed by them in accordance with budgets and programs of work submitted by the directors of extension and approved by the Secretary of Agriculture. The acts require some offset by States and Territories before they become available, so that, as it works out, the extension work is financed about 55 percent from Federal sources and about 45 percent from State and local sources. The funds are used by the States for the support of State and county extension work with rural people.

Funds available for fiscal year 1942 for direct payments to States, Hawaii, Alaska, and Puerto Rico for cooperative agricultural extension work total \$18,863,628. In addition, there is available \$93,290 from appropriations direct to the Department of Agriculture, making a grand total of \$18,956,918 available to the States and Territories for the fiscal year 1942. The Budget Estimates for the fiscal year 1943 provide for total appropriations of \$18,632,950 for these purposes, involving a decrease of \$323,968 as compared with fiscal year 1942. (see Table 1.)

With the exception of funds provided for cooperative farm forestry extension work, which are disbursed directly by the Department, Federal funds for cooperative agricultural extension work are allotted and paid directly to the States, Hawaii, Alaska, and Puerto Rico in accordance with the provisions of the several different basic authorization acts. (see Table 2.)

The use of all these funds is indicated in greater detail in Tables 1, 2, 3, 4, and 5. Table 1 is a summary of all the funds available to the States and Territories. Table 2 gives the estimate of direct payments to the States and Territories for 1943, indicating those which require offset by State, county, or local funds, those where such offset is not required, and the basis of allotment. Table 3 shows, by States, the allotments available to States and Territories for 1942 and 1943 as contemplated by the Budget estimates. Table 4 shows, by States, Federal funds and funds arising from sources within the respective States. Table 5 shows the various classes of field agents employed with extension funds.



Table 1

Statement showing appropriation items to the States in 1942 and estimated for 1943.

| Item   | Appropriation,<br>1942 | Budget<br>estimate,<br>1943 | Increase or<br>decrease |
|--|------------------------|-----------------------------|-------------------------|
| <u>Payments to States, Hawaii, Alaska,<br/>and Puerto Rico for agricultural<br/>extension work:</u>    |                        |                             |                         |
| <u>Permanent Specific Appropriation:</u>   |                        |                             |                         |
| Smith-Lever Act.....   | \$4,704,710            | \$4,704,710                 | - -                     |
| <u>Agricultural Appropriation Act:</u>   |                        |                             |                         |
| Capper-Ketcham Act....   | 1,480,000              | 1,480,000                   | - -                     |
| Extension work, Act of April 24,<br>1939.....  | 555,000                | 203,000                     | - \$352,000             |
| Extension work, section 21,<br>Bankhead-Jones Act.....   | 12,000,000             | 12,000,000                  | - -                     |
| Alaska Acts.....   | 23,918                 | 23,950                      | + 32                    |
| Puerto Rico Act.....   | 100,000                | 128,000                     | + 28,000                |
| Total, Agricultural Appropriation<br>Act.....  | 14,158,918             | 13,634,950                  | - 323,968               |
| Total payments made directly to<br>State and Territories,,.....  | 18,863,628             | 18,539,660                  | - 323,968               |
| <u>Amounts allotted to States and<br/>Territories, but disbursed by<br/>Department of Agriculture:</u> |                        |                             |                         |
| Cooperative farm forestry:   |                        |                             |                         |
| Clarke-McNary Act, Section 5,,,  | 58,530                 | 58,530                      | - -                     |
| Norris-Doxey Act.....  | 34,760                 | 34,760                      | - -                     |
| Total allotments to States and<br>Territories.....   | 93,290                 | 93,290                      | - -                     |
| Total direct payments and Department<br>allotments to States and<br>Territories.....                   | \$18,956,918           | 18,632,950                  | 323,968                 |





Table 2

Statement of direct payments to States, Hawaii, Alaska, and Puerto Rico, indicating those requiring offset by States and Territories, those not requiring such offset, and basis of distribution, as estimated for 1943.

| Item  | Total estimate, 1943 | Amount to be paid without offset | Amount requiring offset and basis of allotment |  |
|---|----------------------|----------------------------------|--|--|
|   |                      |                                  | Amount   | Basis of distribution                  |
| (1) Permanent annual appropriation (Smith-Lever Act)..... | \$4,704,710          | \$500,000 (a)                    | \$4,204,710                                    | Rural population                       |
| (2) Capper-Ketcham extension work.....                    | 1,480,000            | 980,000 (b)                      | 500,000  | " "                                    |
| (3) Extension work, Act of April 24, 1939.....            | 203,000              | 203,000                          | - -  | Determined by Secretary of Agriculture |
| (4) Extension work, section 21, Bankhead-Jones Act.....   | 12,000,000           | 12,000,000 (c)                   | - -  | Farm population                        |
| (5) Alaska.....   | 23,950               | 20,000 (d)                       | 3,950  | Rural Population                       |
| (6) Puerto Rico.....                                      | 128,000              | 128,000                          | - -  | Specified by law                       |
| Total, direct Federal payments.....                       | 18,539,660           | 13,831,000                       | 4,708,660                                      |  |

(a) \$10,000 to each State, Hawaii, and Puerto Rico.

(b) \$20,000 to each State, and Hawaii.

(c) \$20,000 to each State, Hawaii (balance on farm population basis).

(d) \$10,000 to Alaska (Act of Feb. 23, 1929). \$10,000 to Alaska (Act of June 20, 1936).

Funds from other sources

The Federal funds for cooperative agricultural extension work, for the fiscal year 1942, \$18,956,918.06, are supplemented by funds from within the States estimated at \$15,155,245.60, thus making available from Federal, State, and local sources an approximate sum of \$34,112,163.66 for extension work.

See Table 3 for Federal allotments to States and Territories for fiscal years 1942 and 1943.

See Table 4 for extension funds from all sources by States and Territories for fiscal year 1942.



Table 3. Allotments to States and Territories under Federal funds for cooperative agricultural extension work (including Clarke\*McNary and Norris-Doxey extension allotment)

| State          | Appropriation,  | Budget estimate | Increase     | Decrease     |
|----------------|-----------------|-----------------|--------------|--------------|
|                | 1942            | 1943            |              |              |
| Alabama        | \$698,302.82    | \$696,924.72    | -            | \$1,378.10   |
| Arizona        | 117,664.35      | 117,664.34      | -            | -            |
| Arkansas       | 580,410.37      | 576,689.62      | -            | 3,720.75     |
| California     | 454,129.49      | 454,129.49      | -            | -            |
| Colorado       | 214,578.52      | 197,220.24      | -            | 17,358.28    |
| Connecticut    | 133,305.36      | 133,305.36      | -            | -            |
| Delaware       | 76,671.97       | 76,671.17       | -            | -            |
| Florida        | 231,067.67      | 231,067.67      | -            | -            |
| Georgia        | 735,958.71      | 720,261.54      | -            | 15,697.17    |
| Idaho          | 156,837.74      | 154,978.38      | -            | 1,859.36     |
| Illinois       | 583,455.90      | 576,672.27      | -            | 6,783.63     |
| Indiana        | 469,956.72      | 469,956.72      | -            | -            |
| Iowa           | 532,774.33      | 515,359.14      | -            | 17,415.19    |
| Kansas         | 404,595.92      | 372,614.36      | -            | 31,981.56    |
| Kentucky       | 666,738.33      | 666,738.33      | -            | -            |
| Louisiana      | 471,508.08      | 471,508.08      | -            | -            |
| Maine          | 157,686.44      | 156,552.83      | -            | 1,133.61     |
| Maryland       | 199,319.05      | 199,319.05      | -            | -            |
| Massachusetts  | 138,891.81      | 138,891.81      | -            | -            |
| Michigan       | 512,199.49      | 512,199.49      | -            | -            |
| Minnesota      | 495,431.24      | 495,431.24      | -            | -            |
| Mississippi    | 700,066.85      | 700,066.85      | -            | -            |
| Missouri       | 605,751.47      | 605,604.68      | -            | 146.79       |
| Montana        | 174,597.64      | 153,914.48      | -            | 20,683.16    |
| Nebraska       | 345,378.63      | 313,935.55      | -            | 31,443.08    |
| Nevada         | 74,178.64       | 66,539.55       | -            | 7,639.09     |
| New Hampshire  | 94,820.82       | 94,310.97       | -            | 509.85       |
| New Jersey     | 172,749.45      | 168,385.05      | -            | 4,364.40     |
| New Mexico     | 142,889.85      | 142,889.85      | -            | -            |
| New York       | 492,416.60      | 492,416.60      | -            | -            |
| North Carolina | 855,883.08      | 855,883.08      | -            | -            |
| North Dakota   | 249,209.85      | 224,619.75      | -            | 24,589.90    |
| Ohio           | 626,133.35      | 626,133.35      | -            | -            |
| Oklahoma       | 554,842.22      | 523,606.28      | -            | 31,235.94    |
| Oregon         | 188,314.50      | 188,314.50      | -            | -            |
| Pennsylvania   | 645,893.07      | 645,893.07      | -            | -            |
| Rhode Island   | 60,664.87       | 60,664.87       | -            | -            |
| South Carolina | 500,064.02      | 498,819.11      | -            | 1,244.91     |
| South Dakota   | 261,529.04      | 223,533.66      | -            | 37,995.38    |
| Tennessee      | 662,948.30      | 662,948.30      | -            | -            |
| Texas          | 1,192,057.41    | 1,142,007.73    | -            | 50,049.68    |
| Utah           | 122,117.04      | 113,425.44      | -            | 8,691.60     |
| Vermont        | 114,367.63      | 111,058.24      | -            | 3,309.39     |
| Virginia       | 535,358.69      | 529,440.38      | -            | 5,918.31     |
| Washington     | 239,434.68      | 239,434.68      | -            | -            |
| West Virginia  | 353,231.44      | 353,231.44      | -            | -            |
| Wisconsin      | 488,805.21      | 488,714.56      | -            | 90.65        |
| Wyoming        | 109,875.74      | 97,363.94       | -            | 12,511.80    |
| Alaska         | 23,918.00       | 23,950.00       | \$32.00      | -            |
| Hawaii         | 127,891.42      | 117,352.25      | -            | 10,539.17    |
| Puerto Rico    | 204,935.19      | 232,935.19      | 28,000.00    | -            |
| Reserve        | 5,109.25        | 1,400.00        | -            | 3,709.25     |
| Total          | \$18,956,918.06 | \$18,632,950.06 | \$28,032.00  | \$352,000.00 |
|                |                 |                 | Net decrease | \$323,968.00 |



Table 4 Total allotments to States and Territories from Federal  
(including U. S. D. A. ) and State sources for extension work, fiscal year 1942.

| STATE          | TOTAL           |                 | TOTAL WITHIN    |  |
|----------------|-----------------|-----------------|-----------------|--|
|                | FEDERAL FUNDS   |                 | THE STATES      |  |
| Alabama        | \$968,302.82    | \$598,302.82    | \$270,000.00    |  |
| Arizona        | 179,118.35      | 117,664.35      | 61,454.00       |  |
| Arkansas       | 909,882.37      | 580,410.37      | 329,472.00      |  |
| California     | 1,062,961.53    | 454,129.49      | 608,832.04      |  |
| Colorado       | 385,891.52      | 214,578.52      | 171,313.00      |  |
| Connecticut    | 315,648.36      | 133,305.36      | 182,343.00      |  |
| Delaware       | 94,446.97       | 76,671.97       | 17,775.00       |  |
| Florida        | 562,127.34      | 231,067.67      | 331,059.67      |  |
| Georgia        | 1,093,471.21    | 735,958.71      | 357,512.50      |  |
| Idaho          | 280,786.26      | 156,837.74      | 123,948.52      |  |
| Illinois       | 1,111,995.90    | 583,455.90      | 528,540.00      |  |
| Indiana        | 1,003,942.32    | 469,956.72      | 533,985.60      |  |
| Iowa           | 1,224,663.09    | 532,774.33      | 691,888.76      |  |
| Kansas         | 975,447.53      | 404,595.92      | 570,851.61      |  |
| Kentucky       | 941,598.33      | 666,738.33      | 274,860.00      |  |
| Louisiana      | 805,498.00      | 471,508.08      | 333,989.92      |  |
| Maine          | 238,262.51      | 157,686.44      | 80,576.07       |  |
| Maryland       | 390,207.24      | 199,319.05      | 190,888.19      |  |
| Massachusetts  | 492,298.70      | 158,891.81      | 333,406.89      |  |
| Michigan       | 886,764.49      | 512,199.49      | 374,565.00      |  |
| Minnesota      | 818,058.24      | 495,431.24      | 322,627.00      |  |
| Mississippi    | 1,065,046.85    | 700,066.85      | 364,980.00      |  |
| Missouri       | 878,652.00      | 605,751.47      | 272,900.53      |  |
| Montana        | 366,567.64      | 174,597.64      | 191,970.00      |  |
| Nebraska       | 616,062.63      | 345,378.63      | 270,684.00      |  |
| Nevada         | 138,847.66      | 74,178.64       | 64,669.02       |  |
| New Hampshire  | 250,676.48      | 94,820.82       | 155,855.66      |  |
| New Jersey     | 466,142.45      | 172,749.45      | 293,393.00      |  |
| New Mexico     | 266,259.85      | 142,889.85      | 123,370.00      |  |
| New York       | 1,795,230.13    | 492,416.60      | 1,302,813.53    |  |
| North Carolina | 1,312,751.08    | 855,883.09      | 456,868.00      |  |
| North Dakota   | 393,028.02      | 249,209.65      | 143,818.37      |  |
| Ohio           | 1,094,097.35    | 626,133.35      | 467,964.00      |  |
| Oklahoma       | 888,667.52      | 554,842.22      | 333,825.30      |  |
| Oregon         | 557,639.47      | 188,314.50      | 369,324.97      |  |
| Pennsylvania   | 1,053,170.07    | 645,893.07      | 407,277.00      |  |
| Rhode Island   | 82,061.11       | 60,664.87       | 21,396.24       |  |
| South Carolina | 714,179.02      | 500,064.02      | 214,115.00      |  |
| South Dakota   | 366,416.29      | 261,529.04      | 104,887.25      |  |
| Tennessee      | 992,527.94      | 662,948.30      | 329,579.64      |  |
| Texas          | 2,081,777.25    | 1,192,057.41    | 889,719.84      |  |
| Utah           | 214,945.00      | 122,117.04      | 92,827.96       |  |
| Vermont        | 222,767.63      | 114,367.63      | 108,400.00      |  |
| Virginia       | 935,684.69      | 535,358.69      | 400,326.00      |  |
| Washington     | 447,345.23      | 239,434.68      | 207,910.55      |  |
| West Virginia  | 596,800.94      | 353,231.44      | 243,569.50      |  |
| Wisconsin      | 798,303.90      | 488,805.21      | 309,498.69      |  |
| Wyoming        | 208,512.00      | 109,875.74      | 98,636.26       |  |
| Alaska         | 31,418.00       | 23,918.00       | 7,500.00        |  |
| Hawaii         | 178,136.65      | 127,891.42      | 50,245.23       |  |
| Puerto Rico    | 351,966.48      | 204,935.19      | 147,031.29      |  |
| Unallotted     | 5,109.25        | 5,109.25        | - -             |  |
| Total          | \$34,112,163.66 | \$18,956,918.06 | \$15,155,245.60 |  |





As the major purpose of these payments to States is for the employment of extension workers in counties and colleges, the following comparative statement is submitted showing agents employed:

Table 5 Extension field agents employed June 30, 1938, 1939, 1940 and 1941.

|  | June 30,<br>1938 | June 30,<br>1939 | June 30,<br>1940 | June 30,<br>1941 |
|--|------------------|------------------|------------------|------------------|
| State supervisors.....                   | 624              | 625              | 635              | 629              |
| Subject-matter specialists:              |                  |                  |                  |                  |
| Full-time specialists.....               | 1,198            | 1,205            | 1,269            | 1,370            |
| Part-time specialists.....               | 353              | 365              | 368              | 346              |
| Total specialists.....                   | 1,551            | 1,570            | 1,637            | 1,716            |
| Total with headquarters at colleges..... | 2,175            | 2,195            | 2,272            | 2,345            |
| County workers:                          |                  |                  |                  |                  |
| Agricultural agents.....                 | 3,825            | 3,911            | 3,929            | 3,901            |
| Home demonstration agents.....           | 1,894            | 1,960            | 2,035            | 2,093            |
| Boys' and Girls' club agents..           | 337              | 341              | 342              | 357              |
| Negro extension agents.....              | 451              | 468              | 490              | 502              |
| Special A.A.A. county workers.           | 595              | --               | --               | --               |
| Total county workers:.....               | 7,102            | 6,680            | 6,796            | 6,853            |
| Total.....                               | 9,277            | 8,875            | 9,068            | 9,198            |

Number of counties in the States, Hawii  
and Puerto Rico..... 3,152  
Number of counties now having one or  
more agents..... 2,994

A general statement and an individual explanation of each of the various appropriation items follows:



## COOPERATIVE EXTENSION WORK

### General Statement

Objective: To aid rural people to utilize their resources in helping themselves to improve their health, economic welfare, and farm and community life, by means of instruction and practical demonstration. At the present time these objectives are of great importance in the war effort. The cooperative extension system is in a strategic position to aid in this effort by uniting the efforts of rural people for wide participation in an effective way in the Food for Defense, Nutrition and Health, Democracy Discussion, Land Use Planning, National Agricultural and other programs.

The Problem and its Significance: Through the cooperative agricultural extension system, farm income, social environment, and standard of living of farm and rural people are improved. The objectives and obligations of the Extension Service are dependent upon the objectives of agriculture itself. Cooperative agricultural extension work is based on local problems of rural people. Extension workers assist in defining problems to be attacked in local extension programs; endeavor to find solutions for them; carry to farmers, rural homemakers, and 4-H Club members the educational work and research of the State colleges of agriculture and the United States Department of Agriculture, adapted to their needs; and help them apply this information to everyday problems. The extension program for each State or Territory is conditioned by the agricultural environment in which it is placed and is primarily concerned with helping to meet the urgent problems of agriculture.

The work of the county extension agents has expanded with the development of the national public programs for agriculture and the introduction of land-use planning. In addition to carrying on extension work for the improvement of farm and homemaking practices as before, the work now includes giving assistance in carrying these public programs to the people locally, interpreting these programs and encouraging wide participation in them, and the determination of farm and community readjustments based on land-use planning. It has been necessary to integrate the national action programs and State extension programs and to give particular attention to the National Defense Program. During 1942 the States and counties contributed \$15,155,245.60 toward the support of extension work.

General plan: The State allotments are paid directly to a designated officer in each State and are disbursed by the States in accordance with budgets and programs of work submitted by the State directors of extension and approved by the Secretary of Agriculture. Expenditures by the States from this and other cooperative extension appropriations are subject to annual examination by representatives of the Department.



Each of the 48 States, and the Territories of Hawaii and Alaska and Puerto Rico, has a director of extension who represents jointly the Department and the State agricultural college in the administration of extension work. In each State the organization consists of a State administrative and supervisory staff, with headquarters in most cases at the State agricultural college, and county agricultural agents, county home demonstration agents, and county club agents, who have their offices usually at the county seats. The distinguishing feature of extension teaching is the field demonstration, although other educational methods are also utilized to teach the best farm and home practices to farm men, women, boys, and girls.

Funds for cooperative extension work in the States are used for the employment of county agricultural agents, home demonstration agents, club workers, and State specialists to assist adults and young people in the application of results of research in agriculture and home economics to meet local conditions and to improve individual farm and home enterprises and rural life generally. Extension agents, with the aid of supervisors, extension specialists, Federal and State agencies, rural local leaders, and local agencies concerned, develop information with a view to improving existing agricultural and homemaking conditions. The development of this information takes into consideration such matters as character of the soil, land use, production yields, marketing trends, consumption demand, local farm and home practices, health and nutrition, family food supplies, housing and equipment, and human relations. In consultation with representatives from various agencies and with local committees, extension agents develop long-time goals and formulate current extension programs based on local problems. These programs are usually revised annually. The extension workers undertake to carry out these programs in such a manner that the majority of rural families affected will apply new or improved methods, practices, and principles. Extension workers use a variety of direct and indirect teaching agencies and means, the greatest emphasis being placed on demonstrations carried on by the people on their own farms and in their own homes.

Examples of progress and current program: During the past year the Extension Service was requested to assume active leadership in educational work in connection with agricultural phases in the development of a defense program because of its local connections through the cooperative State and county agricultural Extension Service. All resources are being used to expand and intensify educational efforts of the Cooperative Extension Service of the Department and the State agricultural colleges to contribute materially to defense by meeting the emergency on a sound basis. Farm people, in order to carry on their part of the nation-wide program for defense, must be quickly informed of the effect of the world situation on the farm and farming generally, and be helped to make needed adjustments in their farming practices and farm living.





There are county agricultural agents in every county of agricultural importance, home demonstration agents in nearly two-thirds of the counties, 1,650 State subject matter specialists to advise the agents, and a corps of 700,000 volunteer local leaders organized and trained in helping to plan and lead community extension projects. Through meetings of farm people, personal visits, demonstrations, local news stories, regular radio programs, bulletins, local exhibits, tours, circular letters, and other educational devices, extension agents have focused major attention on food for defense needs, facts about the farm situation and outlook, home food production, better food habits, and discussion of the issues facing democracy.

Extension home food production committees were established early in the year and last fall, in practically every state, and expanded coordinated food production and preservation programs were launched, largely by placing major emphasis on already established programs. Within ten days after the Department placed major emphasis on food-for-defense, Federal extension workers had visited every State, and local mass educational programs were under way to encourage and help farm people produce the needed pork, dairy and poultry products, tomatoes, and other foods.

**FOOD FOR DEFENSE.** Under the food-for-defense program, the States have been helped to organize and plan extension work to carry rural programs forward along the lines of stimulating production and preservation of milk and eggs, and other foods on the farms for home use, for prevention of waste of foods, for greater storage and preservation, for developing a wide appreciation of the need for producing and using protective foods in the diet to improve health status of rural people as a measure in adequate defense. Extension agents and local leaders followed through by obtaining pledges from farm families that they would do everything possible to meet home food needs and further increase food production.

Because of local conditions, food for defense efforts naturally vary in different areas. While the major emphasis of Wisconsin extension workers was to increase milk production and shift milk from other uses into needed cheese, Nebraska and the Northeast extension workers adjusted their problems to meet drought conditions, Alabama agents established a garden demonstration in every community, Kansas workers increased production of eggs for drying in available plants, and the corn-belt extension workers encouraged and helped farmers to produce a large share of the foods needed for export to England and other countries.



(a) CAPPER-KETCHAM EXTENSION WORK

|                              |                    |
|------------------------------|--------------------|
| Appropriation Act, 1942..... | \$1,480,000        |
| Budget estimate, 1943.....   | <u>\$1,480,000</u> |

PROJECT STATEMENT

| Project   | 1941        | 1942<br>(estimated) | 1943<br>(estimated) |
|---|-------------|---------------------|---------------------|
| Payments to States and Hawaii for<br>further development of cooperative<br>agricultural extension work (Capper-<br>Ketcham extension work)..... | \$1,480,000 | \$1,480,000         | \$1,480,000         |

WORK UNDER THIS APPROPRIATION

This appropriation provides for the further development of agricultural extension work as specifically authorized by the provisions of the Capper-Ketcham Act of May 22, 1928 (7 U. S. C. 34a, 34b) and supplements the permanent annual appropriation provided under the Smith-Lever Act of May 8, 1914 (7 U. S. C. 341-348). The Capper-Ketcham Act authorizes an appropriation of \$980,000 to be divided at the rate of \$20,000 to each State and to Hawaii, without requirement for State and Territorial offset, and an additional \$500,000 to be divided among the States and Hawaii on the basis of rural population, the allotments from this additional \$500,000 to be met dollar for dollar by the States or Territory before the money becomes available. The Act further provides that at least 80 percent of the funds appropriated under this authorization shall be expended for salaries of county extension agents and that the extension agents appointed under its provisions shall be men and women in fair and just proportions.

As these funds are merged with all other extension funds for the conduct of the cooperative extension work in each State and in Hawaii, Puerto Rico, and Alaska, in conformity with the provisions of the several acts of Congress governing cooperative extension work and the various State Acts, the particular work under this project cannot be separated and for the combined statement see the general statement for cooperative extension work.



(b) EXTENSION WORK, ACT OF APRIL 24, 1939

|                              |                 |
|------------------------------|-----------------|
| Appropriation Act, 1942..... | \$555,000       |
| Budget estimate, 1943 .....  | 203,000         |
| Decrease .....               | <u>-352,000</u> |

PROJECT STATEMENT

| Project   | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Decrease        |
|---|-----------|---------------------|---------------------|-----------------|
| Payments to States for further development of cooperative agricultural extension work (Extension work, Act of April 24, 1939).... | \$203,000 | \$555,000           | \$203,000           | - \$352,000 (1) |

DECREASE

(1) The decrease of \$352,000 in this item for 1943 contemplates discontinuance of the funds provided for the fiscal year 1942 to prevent the curtailment in the program of any State due to a reduction in its allotment from regular extension funds. As the 1940 Census revealed important shifts in farm and rural population since 1930, there was a redistribution of Federal funds for extension work for fiscal year 1942 in accordance with basic acts which entitled 23 States and Puerto Rico to increases shares, while the shares in 25 States and Hawaii were decreased. The amounts by which these 25 States and Hawaii were affected is shown in Table 3 above.

WORK UNDER THIS APPROPRIATION

This appropriation provides for further development of agricultural extension work as specifically authorized by the provisions of the Act of April 24, 1939, (7 U. S. C. 343c-1) and supplements the permanent annual appropriation provided under the Smith-Lever Act of May 8, 1914 (7 U. S. C. 341-348).

A separate accounting of these funds, which were authorized by Congress for the further development of cooperative extension work and to prevent the curtailment in the program of any State due to a reduction in its allotment from regular extension funds, is observed by each State and Territory and an annual report of expenditures by lines of work and items of expenditure is submitted to the Federal Extension Service.

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(c) EXTENSION WORK, SECTION 21, BANKHEAD-JONES ACT

Appropriation Act, 1942.....\$12,000,000  
 Budget estimate, 1943..... 12,000,000

PROJECT STATEMENT

| Project  | 1941         | 1942<br>(estimated) | 1943<br>(estimated) |
|--|--------------|---------------------|---------------------|
| Payments to States and Hawaii for cooperative agricultural extension work (Extension work, section 21, Bankhead-Jones Act) ..... | \$12,000,000 | \$12,000,000        | \$12,000,000        |

WORK UNDER THIS APPROPRIATION

This appropriation provides for the further development of cooperative extension work and is specifically authorized by the provisions of section 21, title II, of the Bankhead-Jones Act of June 29, 1935 (7 U. S. C. 343e), and augments the cooperative agricultural extension funds provided by the Smith-Lever Act of 1914, and the Capper-Ketcham Act of May 22, 1928. While no State offset is required for the funds under this Act, these funds are available to the States only after they have met the required State offset to funds provided under the permanent Smith-Lever Act, and the Capper-Ketcham Act. Under section 21 of the Bankhead-Jones Act, \$20,000 is allotted to each State and to Hawaii. The remainder of the funds is then allotted to each State and Hawaii on the basis of farm population.

As these funds are merged with all other extension funds for the conduct of the cooperative extension work in each State and in Hawaii, Puerto Rico, and Alaska, in conformity with the provisions of the several acts of Congress governing cooperative extension work and the various State acts, the particular work under this project cannot be separated and for the combined statement see the general statement for cooperative extension work.



## (d) ALASKA

|                              |             |
|------------------------------|-------------|
| Appropriation Act, 1942..... | \$23,918    |
| Budget estimate, 1943.....   | 23,950      |
| Increase.....                | <u>+ 32</u> |

## PROJECT STATEMENT

| PROJECT   | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase   |
|---|----------|---------------------|---------------------|------------|
| 1. Extension of the Smith-Lever Act to Alaska<br>(Act of Feb. 23, 1929)....           | \$13,918 | \$13,918            | \$13,950            | + \$32 (1) |
| 2. Extension of the<br>Capper-Ketcham Act to<br>Alaska (Act of June 20,<br>1936)..... | 10,000   | 10,000              | 10,000              | -          |
| Total.....  | 23,918   | 23,918              | 23,950              | + 32       |

## INCREASE

(1) The increase of \$32 in this item for 1943 under the project "Extension of the Smith Lever Act to Alaska", to provide for the additional amount available to Alaska for extension work under the 1940 census is in accordance with the act of February 23, 1929. This amount will be used to augment travel expenses, as the four field workers are obliged to travel great distances to reach and instruct the people in Alaska and to give them practical demonstrations in improved farming and homemaking.

Authorization: As a result of the information submitted by the Director of the Census regarding the rural population of Alaska as returned at the census of 1940, the Territory of Alaska is entitled to \$13,950 for the fiscal year 1942, under the Act of February 23, 1929, of which amount \$3,950 becomes available to the Territory only when an equal amount is provided for extension work in agriculture and home economics from the Territory or other local sources. Upon recommendation of the Secretary of Agriculture, the Territory is entitled to the full authorization as Alaska has appropriated more than its quota to match Federal funds.

## WORK UNDER THIS APPROPRIATION

Objective: The provisions of the Smith-Lever Act of 1914 and the Capper-Ketcham Act of 1928 were extended to Alaska by special acts of Congress to provide for cooperative agricultural extension work in the Territory, as follows:



1. Extension of the Smith-Lever Act to Alaska (Act of Feb. 23, 1929):

The extension of the Smith-Lever Act to Alaska is specifically authorized by the Act approved February 23, 1929 (7 U. S. C. 386c). Under the provisions of this act, \$10,000 is appropriated annually to Alaska without requirement of Territorial offset, and the remainder must be matched by Territorial funds used for extension work. Experiment stations have been maintained in Alaska for many years but cooperative agricultural extension work was not systematically begun among farmers until 1931.

2. Extension of the Capper-Ketcham Act to Alaska (Act of June 20, 1936):

Funds provided under the Act of February 23, 1929, were supplemented by the extension of the Capper-Ketcham Act to Alaska, as specifically authorized by an act approved June 20, 1936 (7 U. S. C. 343e). Under the provisions of this act, \$2,500 was authorized for the fiscal year 1937, to be increased on recommendation of the Secretary of Agriculture by this amount annually until a total of \$10,000 is reached. The act also provides that the several established judicial divisions of the Territory of Alaska, as the same shall exist, be considered as counties for the purpose of complying with the provisions of the act until a subdivision of the Territory into counties is effected. No Territorial offset is required for any of the funds under the Act approved June 20, 1936.

Examples of Progress and Current Program:

Extension workers assist farmers and their families to raise and market more and better vegetables, fruits, and livestock, and to adopt improved practices in nutrition, soil building, clothing, home furnishings, etc., in order to make the area more self-sufficient. The greater part of the agricultural work has been done in the Matanuska Valley with the 230 farm families brought in by the Alaska Rural Rehabilitation Corporation, the manager of which organization serves on committees with the extension agents and assists in carrying out extension projects. The Extension Service takes an active part in the work of the Matanuska Valley Land Planning Council for agricultural development. Home demonstration work is carried on in practically all of the cities and towns. 4-H Club work is carried on with 68 club groups with a total enrollment of 577 boys and girls. Cooperation is maintained with the schools, the Public Health Service, the Office of Education, the Indian Service, Forest Service, the Alaska Railroad and Soil Conservation Service. Progress has been made in nutrition, clothing, construction, home health, home gardening, production of cereals, hay and pasture, raising hogs, sheep, chickens, and turkeys, fur farming, production of clean milk and expansion of dairy cattle production.





(e) PUERTO RICO

Appropriation Act, 1942.....\$100,000  
 Budget Estimate, 1943..... 128,000  
 Increase..... 28,000

PROJECT STATEMENT

| Project  | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase    |
|--|----------|---------------------|---------------------|-------------|
| Payments to Puerto Rico for extension of section 21, Bankhead-Jones Act, to Puerto Rico..... | \$90,000 | \$100,000           | \$128,000           | +28,000 (1) |

INCREASE

(1) The increase of \$28,000 in this item for 1943 is to carry out the provisions of the Act of August 28, 1937 (7 U. S. C. 343f, 343g), extending the benefits of section 21 of the Bankhead-Jones Act to Puerto Rico.

Objective: To expand extension services in Puerto Rico, more critically needed than ever because of war conditions, by providing for 8 technical extension workers, in addition to the 87 now employed, to reach more adequately the large farm population in need of help, as follows: (1) Four county agents at a total cost of \$3,850 each, including salary, travel, and miscellaneous expenses, to carry out a program with farmers to increase the production of food, to meet the need made more acute by the defense forces; (2) three home demonstration agents at a total cost of \$3,300 each, including salary, travel, and miscellaneous expenses, to promote intensive educational programs aimed to correct the deficient diet of the small farmers and farm laborers' families and to improve their homemaking practices, leading to better farm living and stronger people; (3) one assistant 4-H Club specialist at a total cost of \$2,700, including salary and travel, to aid in youth problems.

The problem and its significance: According to the 1940 Census, Puerto Rico has a rural population of 1,302,898. The island has less than one-half of an acre of arable land per capita available to produce subsistence for the islanders. The pressure of rural population has forced a specialization in cash crops such as sugar cane, which give the highest return per acre. Consequently about 50% of the food consumed must be imported from the mainland although Puerto Rico possesses the soil and climate for a great range of food products. Of the 52,965 farms in Puerto Rico, 88 percent are of less than 20 acres each and 79% **are not on improved roads.** The country is very rugged and there is a lack of rural mail service and telephones. Over 160,000 rural boys and girls do not attend school although they should be receiving training to make them good citizens, farmers, and homemakers. With increased funds the agents could further

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aid in youth problems. Puerto Rican farms are scattered over 77 municipalities and include over 200,000 rural families. Each county agent is responsible for taking the extension program to approximately 3,000 rural families and each home demonstration agent, to approximately 10,000 rural families. This is much too heavy a case load for adequate attention.

The island of Puerto Rico has never seen such activity as is taking place today, due to the defense program. The Extension Service is assisting by conducting a vitally important campaign to increase the production and preservation of food products to approach self-sustainment, since the importation of food products might become difficult. However, its efforts need to be further expanded, particularly to assist small farmers by personal contact and actual demonstration, in order to increase the productivity of the farms and gardens to the greatest practicable extent.

Authorization: The appropriations authorized and the amounts appropriated to Puerto Rico under the Smith-Lever Act, as amended, and the Act of August 28, 1937, are as follows:

|  |                             |
|--|-----------------------------|
| <u>Permanent Specific Appropriation</u><br>(Act of Mar. 4, 1931) | <u>Act of Aug. 28, 1937</u> |
| <u>A u t h o r i z a t i o n s</u>                               |                             |

| <u>Year</u>      |                             | <u>TOTAL</u>   |
|------------------|-----------------------------|----------------|
| 1939.....        | \$95,069      \$88,000      | \$183,069      |
| 1940.....        | 95,069      128,000         | 223,069        |
| 1941.....        | 95,069      168,000         | 263,069        |
| 1942.....        | 103,315      208,000        | 311,315        |
| <u>1943.....</u> | <u>103,315      248,000</u> | <u>351,315</u> |
| 1944.....        | 103,315      288,000        | 391,315        |
| 1945.....        | 103,315      328,000        | 431,315        |
| 1946.....        | 103,315      368,000        | 471,315        |
| 1947.....        | 103,315      408,000        | 511,315        |

| <u>A p p r o p r i a t i o n s</u> |                             |         |
|------------------------------------|-----------------------------|---------|
| 1939.....                          | 95,069      45,000          | 140,069 |
| 1940.....                          | 95,069      65,000          | 160,069 |
| 1941.....                          | 95,069      90,000          | 185,069 |
| 1942.....                          | 103,315      100,000        | 203,315 |
| 1943.....                          | 103,315      (Est.) 128,000 | 231,315 |

WORK UNDER THIS APPROPRIATION

Objective: The benefits of the Bankhead-Jones Act of 1935 were extended to Puerto Rico by the Act of August 28, 1937, to provide for further cooperative agricultural extension work, as follows:

1. The first part of the report deals with the general situation of the country and the progress of the work during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

2. The second part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

3. The third part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

4. The fourth part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

5. The fifth part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

6. The sixth part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

7. The seventh part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

8. The eighth part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

9. The ninth part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.

10. The tenth part of the report deals with the work done during the year. It is a summary of the work done and a statement of the results achieved. It is a statement of the work done and a statement of the results achieved.



The Act approved August 28, 1937 (7 U. S. C. 343f, 343g), authorizes the extension of section 21 of the Bankhead-Jones Act of 1935 to Puerto Rico, with the provision that the amounts to be paid to Puerto Rico are authorized without diminution of the amounts authorized for payment to the States and the Territory of Hawaii in section 21 of the original act. This act also authorizes the payment of \$88,000 to Puerto Rico for the first fiscal year following enactment, with annual increments of \$40,000 thereafter until the total reaches \$408,000, in fiscal year 1947, continuing thereafter in that amount.

This fund augments the cooperative agricultural extension funds provided for Puerto Rico, (\$103,315) under the permanent Smith-Lever Act approved May 8, 1914 (7 U. S. C. 341-348), which act was amended by the Act of March 4, 1931 (7 U. S. C. 386d-386f), to extend its benefits to Puerto Rico. The funds are available to Puerto Rico only after it has met the required offset to funds provided under the permanent Smith-Lever Act.

Examples of progress and current program: Extension work in agriculture and home economics in Puerto Rico is of similar nature to that conducted in the States, modifications being made to suit local conditions. The extension agents of Puerto Rico are responsible for bringing to all rural people of the Island the latest information regarding agriculture and home economics and for helping them adopt improved methods and practices in the production and marketing of crops and livestock; the growing of gardens and other home food supplies; the preservation of food; adequate diets for health; improved sanitation; the development of community life; and other activities to promote higher standards of living. The 4-H Club work with boys and girls is stressed along the lines of both agriculture and home economics.

The small farmers are very poor and many cannot read or write, consequently county agricultural and home demonstration agents must make many personal visits to the isolated farms and homes and put on demonstrations in better farming and homemaking to improve living conditions of the people. During the past year 32 extension agents visited 43,208 different farms or homes and held 5,153 method demonstration meetings with an attendance of 54,525 persons. It is estimated that 27,889 farmers changed practices for the better and that in 4,309 farm homes improved practices were adopted as a direct result of the influence of the agricultural and home demonstration programs. Improvement of living conditions is slow but definite.





(f) ADMINISTRATION AND COORDINATION OF EXTENSION WORK

|  |                |
|--|----------------|
| Appropriation Act, 1942, plus \$5,783 supplemental<br>for within-grade promotions..... | \$555,783      |
| Budget estimate, 1943.....   | <u>561,803</u> |
| Change from 1942:  |                |
| Additional for administrative promotions.....  | + <u>6,020</u> |

PROJECT STATEMENT

| Projects  | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase |
|---|-----------|---------------------|---------------------|----------|
| 1. General administration<br>and business service.....  | \$122,949 | \$125,000           | \$125,000           | -        |
| 2. Review and analysis of<br>State budgets, projects,<br>and plans, and examina-<br>tion of State expendi-<br>tures from Federal pay-<br>ments..... | 68,836    | 70,000              | 70,000              | -        |
| 3. Planning and coordination<br>of State and county ex-<br>tension work.....  | 116,866   | 115,000             | 115,000             | -        |
| 4. Development of technical<br>subject matter for use by<br>State extension forces....  | 156,522   | 160,000             | 160,000             | -        |
| 5. Field studies of extension<br>work, and the training of<br>extension workers.....  | 80,641    | 80,000              | 80,000              | -        |
| 6. Net cost of within-grade<br>promotions.....  | -         | 5,783               | 11,803              | \$6,020  |
| Unobligated balance.....  | 4,186     | -                   | -                   |          |
| Total.....  | 550,000   | 555,783             | 561,803             | 6,020    |

WORK UNDER THIS APPROPRIATION

**Objective:** To represent the Department in the administration, through the State agricultural colleges, of the nation-wide system of cooperative extension work in order that it may function nationally as well as on a State and local basis as an effective educational force which helps rural people to utilize fully all available resources in solving current problems and in meeting the new situations resulting from changing economic, social, and political conditions, to the end that nutrition and health, economic welfare, family and community life may be improved and the general standard of living raised.



The problem and its significance: The Extension Service has the leading responsibility in the educational activities closely related to the agricultural phases of the national defense effort. The Secretary of Agriculture is now reshaping all programs in light of the war development and all possible steps are being taken to realign extension work so as to make the greatest contribution toward helping farmers discharge the primary responsibility of American agriculture during the emergency--the production of food and fiber needed by this country and her allies. The agricultural defense problems arising in cooperative extension work are referred to the technical and administrative staff of the Federal Extension Service for the purpose of making a thorough analysis of them, determining what agencies of the Department are involved in their solution, and recommending complete detailed plans of action to meet the situation. These plans are put into effect by the Federal Extension Service in cooperation with the various bureaus and agencies of the Department concerned, State extension services, and county workers. Agricultural extension is a cooperative enterprise of the Department and of the agricultural colleges of the 48 States, Hawaii, Alaska, and Puerto Rico. The system is highly decentralized with the immediate direction of the 6,800 agents located in the 3,000 counties and of the 2,200 State subject-matter specialists and supervisory officers, lodged with the 51 agricultural college extension services.

Because the subject-matter research conducted by the various bureaus of the Department is larger in volume than the combined research of all the State colleges and experiment stations, the Department has an important contribution to make to the subject-matter content and conduct of extension programs for farm people.

Large agencies have been established within the Department to provide financial aid and to assist farmers with the solution of specific problems.

The successful prosecution of the war also requires an effective, quickly-responsive, nation-wide educational medium through which to inform rural people concerning war needs and to secure their complete cooperation in food production and other war programs.

General plan: In order to meet these problems, it is necessary to:

1. Administer the various acts of Congress relating to extension work. This involves analyzing budgets, programs and plans of work, and suggesting revisions to the States; field visits and follow-up work throughout the year to make certain that projects are conducted as agreed upon; and competent examination of the accounts of the various State and territorial extension services after the close of the fiscal year to determine if expenditures have been made in accordance with the law.
2. Perform the general supervision of the work of 3,901 county agricultural agents, 2,093 home demonstration agents, 357 club agents, 502 Negro agents, and 629 State and national supervisors which centers in and clears through the Federal Extension Service, to maintain central direction in order that national standards and principles in organizing and conducting extension work on the county level be followed throughout the country.





This results in making the work with farmers, farm women and rural homemakers, rural boys and girls more efficient especially as related to the Department's national programs for agriculture, the emergency programs of war and defense, and continued improvement of farming and homemaking practices.

3. Provide for the channeling to the 1,650 State subject-matter specialists, and through them to the county workers, the results of Department research, and the services of Department agencies of practical assistance to farm people. Adequate subject-matter information is of vital importance to State and county extension workers in effectuating significant programs dealing with the production, management and marketing problems of the farm and the family living problems of the farm home. The county extension agents depend upon the State extension specialists in the various field of agriculture and home economics, and the State extension economist in marketing and farm management, for subject matter and economic information and guidance in solving farm problems. The State specialists in turn are dependent upon the Federal extension subject-matter specialists and economists who serve as liaison between the several agencies of the Department and the colleges, and act as leaders in developing coordinated subject matter and economic educational programs on a regional basis.

4. Conduct field studies and personnel training activities to make extension work more effective. In a decentralized educational system such as the cooperative extension service, with more than 9,000 professional employees, 700,000 voluntary local leaders, 1,400,000 4-H Club members; 1,140,000 members of home demonstration groups; with organized extension programs conducted in 65,000 communities; and with 4,700,000 farm families definitely influenced each year by extension activities, it is exceedingly important that a continuous program of field studies be conducted to determine the effectiveness of organizational structures, programs, and methods and provide a factual basis for improving procedures and techniques. It is equally important that the new field personnel be given suitable training upon induction into the service and that the older workers, many of whom received their preparatory training 10-15 years ago, be kept abreast of subject-matter research and current social and economic developments, and be informed and practiced in the best known methods of conducting extension work with farmers, homemakers, and 4-H Club and older youth.

#### Examples of progress and current program:

General administration and business service: The general business operations have proceeded and a study of the functions and organization of the Washington Office of the Extension Service has been made in order to suggest changes in the organization to increase its efficiency and production. More study is being given to the division of the work load with a view to relieving the higher administrative officials of details by delegation of functional authority.





Review and analysis of State budgets, projects, and plans, and examination of State expenditures from Federal payments: The State extension accounts have been examined to insure that all cooperative extension funds have been spent by each State and Territory in accordance with Federal laws and agreements between the United States Department of Agriculture and the State extension services, including approved plans and projects. The number of unsatisfactory vouchers submitted each year is becoming less as a result of advice and suggestions given State officers each year.

Planning and coordination of State and county extension work: There has been a marked increase in the need for assistance to the States in organizing, planning and directing this work because of the relation of extension activities to defense. The Food for Defense program has become a major project. This involves work in helping the States to organize and plan extension work to encourage farmers to produce more milk and eggs. Very much has been done to stimulate production and preservation of these and other foods on the farms for home use through the support of home demonstration agents. At the present time, with the cooperation of other agencies in the Department, a drive is planned for much greater development of fall and winter gardens. The States are responding splendidly to the requests for prevention of waste of foods and for much greater storage and preservation. Three regional conferences on nutrition were held last spring. These gave great impetus to advancing nutritional work, particularly with reference to some of the newer developments in the field of nutrition.

A conference of 11 central States extension workers on the problems of older rural youth was organized under this project. It is believed that this conference and the follow-up work being done from here in the States will lead to definite dynamic programs for older farm boys and girls. In the same way, work has been started in the Central States with directors, marketing specialists and supervisors to inventory extension work in marketing and to develop a conference aimed at redirecting and making more dynamic the extension programs in marketing.

The program for stimulating discussion of the issues growing out of the present crisis has met with gratifying response in many States. This will be continued, emphasizing particularly the need for rural people to understand the many adjustments they may have to make because of shortages of labor, materials, and supplies occasioned by defense needs. Also the program will include a study of the adjustments which must be made when this present emergency is over.

Development of technical subject matter for use by state extension forces: Technical workers assist State and county extension forces by making available the results of Department research work and significant information relating to national programs for agriculture required in the development and conduct of effective State extension programs. The Extension Service has been asked to develop the basic educational material in agriculture, home economics, economics, and marketing, for use in connection with all the extension activities that are closely related to the national defense effort. Progress under this work is divided along the following activities:

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(a) Special progress has been made in the program to encourage the production of an abundant supply of nutritious food for defense of the nation and for aid to nations resisting aggression. Cooperation was afforded to agencies dealing with dietary deficiencies, the distribution of surplus foods, and the production of abundant food supplies. Special emphases was placed on production of most of the annual nutritional requirements of farm families from their farms. Dairy, pork, poultry, and vegetable production has been considerably expanded in support of the Department program.

The desirability of care and repair of farm machinery has been emphasized to minimize the effects of diminishing supplies of new machines and repair parts, and the increasing scarcity of farm labor. Construction plans have been provided for economic and safe farm storages of grain, especially wheat in the West, and corn in the South.

Liaison for the coordination of extension work with the programs of the AAA, SCS, REA, and FSA, has been particularly successful this year. The number of both Federal and State extension specialists has been increased to further these programs on the farm.

Rural electrification, housing, handicrafts, industries, better home management, and better cultural and recreational activities among rural families have been given special attention. Conservation of human and natural resources has been emphasized for both defense and after-defense requirements. Protection of resources from losses or waste due to insects, diseases, the elements, fire, and accidents have been given special attention.

These objectives have been approached at the Federal level through a staff of specialists representing extension workers in the various bureaus and agencies and participating in interbureau, interdepartmental and national conferences for the formulation and coordination of extension subject matter in the agricultural and home economics and related fields of science. The program has been promoted at the regional, State, and county levels through 24 Federal and 1200 State subject-matter specialists cooperatively preparing and disseminating information through the agricultural and home demonstration programs for farm people which are developed by State and county planning committees.

(b) Significant educational results have been achieved in land-use planning, land utilization, individual and group-method farm planning, farm record keeping and analysis, farm credit, use of economic information, marketing and distribution, farm tenure and improvement, assistance to low-income groups and 4-H Club groups, and in national defense work. These results have been accomplished by assisting the 48 States to broaden their educational programs to meet the increasing demands for assistance in economics and public affairs.

Work on a regional and national level in the fields of economic production, marketing, and distribution has brought results. Farm management and individual farm planning, regional adjustments in production to meet defense needs, and development of land utilization and control policies and intra-state land-use planning programs were stressed. An understanding among growers of surplus marketing agreements, the food stamp plan, and other programs, was broadened





Distributors, retailers, and consumer groups were aided in disposing efficiently of peak market supplies.

New work undertaken included (1) an advisory service to national marketing committees on developing research programs as a basis for more effective action in marketing fruits and vegetables; (2) securing State planning reports on best use of national resources; (3) making farmers aware of economic effects of war and defense programs; (4) aiding dislocated farmers in making readjustments; and (5) counseling farmers on methods of cooperating to meet defense-area requirements for farm produce.

Field studies of extension work, and the training of extension workers: Studies of the effective use of voluntary local leadership (6 States), the planning of programs for local groups (4 States), judging contests (2 States), testing devices for measuring the educational growth of boys and girls who participate in 4-H Club work (11 studies - 5 States) are making possible greatly improved procedures in carrying on 4-H Club work with the 1,420,000 rural boys and girls enrolled annually. The studies of home conditions and the effectiveness of home demonstration program in relation to land use classes (1 State), food habits and the adequacy of home food production (1 State), and the extent of influence and relative effectiveness of teaching methods are constantly improving the programs and teaching procedures employed in home economics extension with rural women. The relationship of white and negro extension workers has been studied in 15 States, a bibliography of 112 4-H Club studies prepared, knowledge of rural arts and handicrafts have been advanced by the rural arts survey involving 47 States. Trends in the activities and accomplishments of the Cooperative Extension Service as revealed through annual reports have been studied, special analyses being prepared for 4-H Clubs and negro extension work. Four hundred fifty-three extension workers, and 196 representatives of other Federal and State agencies attended the 3 - 8 week in-service training courses given at 15 institutions during the summer of 1940.





(g) EXTENSION INFORMATION

|  |                |
|--|----------------|
| Appropriation Act, 1942, plus \$2,142          |                |
| supplemental for within-grade promotions ..... | \$242,142      |
| Budget estimate, 1943 .....                    | <u>204,392</u> |
| Change from 1942:                              |                |
| Reduction in working funds .....               | -40,000        |
| Additional for administrative promotions ..... | + 2,250        |
| Net decrease .....                             | <u>-37,750</u> |

PROJECT STATEMENT

| Projects   | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decreases |
|--|----------|---------------------|---------------------|--------------------------|
| 1. Preparation and distribution of visual material and extension literature to Department and State extension forces ..... | \$84,073 | \$85,000            | \$85,000            | -                        |
| 2. Preparation and distribution of motion pictures on agriculture and related subjects .....                               | 73,117   | 74,500              | 55,300              | -\$19,200(1)             |
| 3. Preparation and exhibition of agricultural exhibits..   | 80,633   | 80,500              | 59,700              | - 20,800(2)              |
| 4. Net cost of within-grade promotions .....   | -        | 2,142               | 4,392               | + 2,250                  |
| Unobligated balance .....  | 2,177    | -                   | -                   | -                        |
| Total .....  | 240,000  | 242,142             | 204,392             | - 37,750                 |

INCREASES OR DECREASES

The decrease in working funds of \$40,000 in this item for 1943 consists of:

- (1) A decrease of \$19,200 under the project "Preparation and distribution of motion pictures on agriculture and related subjects" represents approximately a 25% reduction in the allotment for this project and expenditures for salaries, travel, and miscellaneous expenses will be reduced proportionately.
- (2) A decrease of \$20,800 under the project "Preparation and exhibition of agricultural exhibits" represents approximately a 25% reduction in the allotment for this project and expenditures for salaries, travel, and miscellaneous expenses will be reduced proportionately.



WORK UNDER THIS APPROPRIATION

Objective: To develop and carry out a unified visual program of extension information interpreting the objectives of the Department's program for the advancement of agriculture through the preparation and distribution of motion pictures, exhibits, film strips, printed and duplicated information, and teaching materials, adapted for educational use by State and county extension workers in order to guide them in the organization and conduct of State and county visual programs designed to further agriculture program objectives as adapted to the local situation.

The problem and its significance: Cooperative agricultural extension work, as defined in the Smith-Lever Act, consists of "The giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said (land-grant) colleges in the several communities." The mainstay of this Federal-State system of cooperative extension education is the staff of more than 5000 agricultural agents, home demonstration agents, and 4-H Club agents in the counties, and the 700,000 volunteer community extension leaders who assist rural people to utilize more fully their resources in solving current problems and in meeting new situations.

Studies indicate that visual aids, publications, news, and similar informational and instructive materials rate high as economical media that strengthen and widen the influence of the work of the county extension agent. Scientists claim that 83 percent of impressions are received through the eye; hence motion pictures are one of the most effective means of disseminating the results of research so valuable to farm people. They attract them to meetings where agricultural problems are discussed, and in one State a study was made showing motion pictures to be the means of increasing the average attendance at these meetings over 800 percent. There is practically no information in published form or otherwise, available on the design and use of educational exhibits, and the greatest experience in this field as related to agricultural education is now available in the Department. Therefore, these aids should be widely and effectively used, as the 9,000 cooperative extension workers must be furnished assistance through recognized teaching aids to secure the best teaching results and the greatest accomplishment for the money appropriated by Congress to introduce better farm and home practices among 30,000,000 farm people.

County extension agents depend upon the Federal Extension Service for basic agricultural information adapted to their local situations. The Federal Extension Service has established facilities for making major contributions to the war effort through the rapid dissemination of information relating to vital wartime programs by means of motion pictures, exhibits, film strips, photographs, extension literature, etc., for use by Federal and State extension workers to assist farm people in carrying on their production and other programs under conditions that will prevail in the future. It is the problem of the Federal Extension Service to develop and carry out a broad unified program of visual education to provide agricultural information based on the results of Department research and Department wartime programs.





General plan: It is necessary to develop three types of visual programing:

(1) An over-all program in support of broad Department objectives, which at this time is to assist in directing vital wartime programs of the Department, subordinating all other efforts, (2) individual programs for each Department group, and (3) a program in furtherance of cooperative extension work which would enlist the cooperation of the land-grant colleges in the development of State and local visual programs to supplement, reinforce, and localize the program developed nationally.

The general plan to effectuate production and distribution programs for supplying visual, printed, and duplicated information and teaching materials adapted for educational use by State and county extension workers is as follows:

(1) Activities along such lines as radio, publications, news, photographs, film strips, charts, circular letters, are maintained to provide technical services and aids to make more effective the teaching work of extension forces in the field. Such technical services and aids consist of (a) providing a consulting, guiding, and teaching service to help State and county extension workers plan, produce, and use their own visual and information materials as teaching aids; (b) producing materials of a more generalized nature based on subject-matter information developed in the Department to reinforce and supplement the materials prepared locally; (c) keeping State and county extension forces informed of new developments in Department policies, programs, and procedures having a vital bearing on the character of extension work; and (d) organizing and preparing in cooperation with field agents of the Service, publications concerning extension procedures and methods required for training county extension employees for the more effective teaching of farm people.

(2) The Extension Service, in cooperation with the various bureaus of the Department, State extension services, and other agencies, prepares and distributes motion pictures to the approximately 9,000 extension workers and to educational agencies. The subjects on which motion pictures are to be prepared are selected in two ways - (a) by recommendation of State extension services; and (b) by request of bureaus of the Department of Agriculture for motion pictures on subject matter with which they are concerned. Trained personnel is provided for making the necessary pictures and for recording sound, development, processing, and other steps essential to the preparation of films. Distribution is conducted from Washington with 32 sub-distribution centers in 28 States. Records are maintained and films are booked, shipped, and inspected. Notifications of release of films are prepared and catalogs and other necessary information furnished. Facilities for service being inadequate to meet all demands the preference in the use of films on farming subjects is given to extension field workers, agricultural schools, and the like, and films of more general character are sent to schools and other organizations on request. An annual contract is made with a commercial laboratory to make prints from Department negatives at a definite price and applicants are encouraged to buy copies whenever extended use is contemplated.





(3) The Extension Service, in cooperation with the various bureaus of the Department, State extension services, and other agencies, prepares educational agricultural exhibits based on information developed in or sponsored by the Department, and manages the display of exhibits at fairs, expositions, meetings, conventions, etc. This includes the analysis of subject matter; preparation of exhibit designs and construction plans; construction and maintenance of exhibits; and negotiation of cooperative agreements with fairs, expositions, and other exhibition occasions. The handling and shipping of exhibits and the management of display at cooperating exhibition occasions are arranged and supervised.

Examples of progress and current program: The following examples of recent accomplishments under this appropriation are cited by projects to show progress.

1. Preparation and distribution of visual material and extension literature to Department and State extension forces: The 9,000 field workers of the Extension Service have been kept informed of changes in programs and the establishment of new programs of the Department to meet national defense needs. The monthly publication, The Extension Service Review, was printed and distributed to all extension workers. All State extension information plans of work were reviewed. Requests for 4,000,000 copies of Department bulletins and leaflets from field workers were handled. Twelve new extension publications were printed and distributed for field use. Approximately 3,500,000 pages of informational material were duplicated and distributed. About 10,000 copies of Department film strips were purchased by field workers. Twenty new film strips series were added to the Department library and 15 of the old series revised. Approximately 1,000 new photographs were taken by Department photographers, cataloged, and placed in the photographic files. Illustrations for publications were furnished 43 magazines and 253 newspapers. Considerable art work was involved in the preparation of publications and film strips, which included line drawings, air-brush work, layouts, etc. Other work accomplished by the artists included preparation of 67 cloth charts for extension specialists, 32 graphs, 34 maps, 5 displays, and 3,600 miscellaneous art jobs.

Also, 110 national and regional radio programs dealing with extension activities were broadcast. Twenty-five State extension services were given special assistance by specialists in conducting radio and visual aid schools. Fifteen addresses were prepared for the Director and other staff members.

2. Preparation and distribution of motion pictures on agriculture and related subjects: Thirty new motion pictures were produced, such as, "Fruits, Vegetables and Cooperation", "Harvests for Tomorrow", "A Heritage We Guard", "The Home Place", "Roads and Erosion". Five subjects were revised and production was begun on 26 new pictures. Five additional films are now in process of revision. Eleven new State distribution centers were established, bringing the total number to 32. Six thousand eight hundred prints of 143 subjects, totaling 11,245 reels, are being distributed direct from Washington and the State depositories.



Attendance reports at showings of the Department motion pictures indicate that an audience of over 13,300,000 persons principally farm people, viewed Department films at more than 89,000 meetings. Approximately 4,000 prints of Department motion picture films were purchased during the year by schools and other organizations. Five thousand and eight hundred requests for films were refused because of inability to fill all orders. The productions of agricultural motion pictures bearing upon national defense are being stressed, and many Department subjects are being used to promote cultural relations with the Central and South American countries and other democracies.

3. Preparation and exhibition of agricultural exhibits: Educational exhibits presented useful information on agricultural problems to an estimated attendance of 35 million persons at 21 major agricultural fairs and 26 miscellaneous occasions. The exhibits displayed were prepared in cooperation with the various bureaus of the Department, State extension services, and other agencies by renovating and revising 84 existing exhibits and by building one new fourteen-exhibit group on national defense aspects of 4-H Club work, eight new units on various subjects for modernizing and strengthening existing exhibit groups, and ten portable exhibits on soil erosion, grazing, ever-normal granary and livestock. Exhibit coordinating, planning, and advisory services were rendered to various Department branches.

#### (h) GOLDEN GATE INTERNATIONAL EXPOSITION

This Budget schedule reflects the allotment of \$594 made to the Extension Service from the appropriation "Golden Gate International Exposition (Transfer to Agriculture)" for the purpose of defraying expenses in connection with the furnishing of materials for use in the exhibit at the Golden Gate International Exposition held in San Francisco, California, during 1940.



COOPERATIVE AGRICULTURAL EXTENSION WORK

(Permanent Annual Smith-Lever Appropriation)

Permanent Appropriation, 1942 ..... \$4,704,710  
Budget Estimate, 1943 ..... 4,704,710

PROJECT STATEMENT

| Project  | 1941        | 1942<br>(estimated) | 1943<br>(estimated) |
|--|-------------|---------------------|---------------------|
| Payments to States, Hawaii, and<br>Puerto Rico for cooperative<br>agricultural extension work<br>(Smith-Lever Act) ..... | \$4,701,165 | \$4,704,710         | \$4,704,710         |

WORK UNDER THIS APPROPRIATION

This permanent specific appropriation for cooperative agricultural extension work was provided for under the Smith-Lever Act, approved May 8, 1914 (7 U. S. C. 341-348), as amended by the extension of this Act to the Territory of Hawaii by the Act of May 16, 1928 (7 U. S. C. 386-386b) and to Puerto Rico by the Act of March 4, 1931 (7 U. S. C. 386d-386f). Under the provisions of these Acts, \$10,000 is appropriated annually to each State, Hawaii, and Puerto Rico without requirement of State or Territorial offset, and the remainder of the appropriation is distributed on the basis of rural population. The Smith-Lever Act is the basic act under which cooperative extension work is conducted by the Department and the State colleges of agriculture.





SUPPLEMENTAL FUNDS

(Complete Bureau Statement)

Direct Allotments

| Projects   | Allotments<br>1941 | Estimated<br>allotments<br>1942 | Estimated<br>allotments<br>1943 |
|--|--------------------|---------------------------------|---------------------------------|
| <u>Conservation and Use of Agricultural<br/>Land Resources:</u> For special<br>assistance on projects incident<br>to the agricultural conservation<br>program .....                  | \$28,690           | \$31,785                        | \$9,590                         |
| <u>Salaries and Expenses, Agricultural<br/>Adjustment Administration:</u> For<br>technical and clerical assistance<br>on agricultural adjustment pro-<br>grams .....                 | 10,000             | 25,000                          | -                               |
| <u>Exportation and Domestic Consump-<br/>tion of Agricultural Commodities:</u><br>For assistance in connection with<br>requirements of the Surplus<br>Marketing Administration ..... | 1,620              | 1,620                           | 11,620                          |
| <u>Cooperative Farm Forestry:</u> Cooper-<br>ation with States for extension<br>activities in developing farm<br>forestry:<br>Under Clarke-McNary Act,<br>Section 5 .....            | 65,200             | 65,200                          | 65,200                          |
| Under Norris-Doxey Act .....   | 41,800             | 41,800                          | 41,800                          |
| Total .....  | 107,000            | 107,000                         | 107,000                         |
| <u>Working Fund, Agriculture, (Reclama-<br/>tion Fund, Special Fund):</u> For<br>special assistance on reclamation<br>projects of the Department of the<br>Interior .....            | 5,184              | 9,500                           | 9,500                           |
| Total, Supplemental Funds<br>(direct allotments) .....   | 152,494            | 174,905                         | 137,710                         |



BUREAU OF AGRICULTURAL ECONOMICS

(a) SALARIES AND EXPENSES

Appropriation Act, 1942, plus \$29,610 supplemental  
for within-grade promotions ..... \$886,715  
Transfers and allotments, 1942, as shown in the  
Budget schedules ..... 2,986,451  
Total available, 1942 ..... 3,873,166

Budget estimate, 1943:  
Direct appropriation ..... 1,328,798  
Transfers as shown in the Budget schedules ..... 2,178,372  
Total available, Budget estimate, 1943 ..... 3,507,170

Change from 1942:  
Net reduction in working funds ..... - 365,184  
Decrease in funds for administrative promotions.. - 812  
Net decrease in total available ..... - 365,996

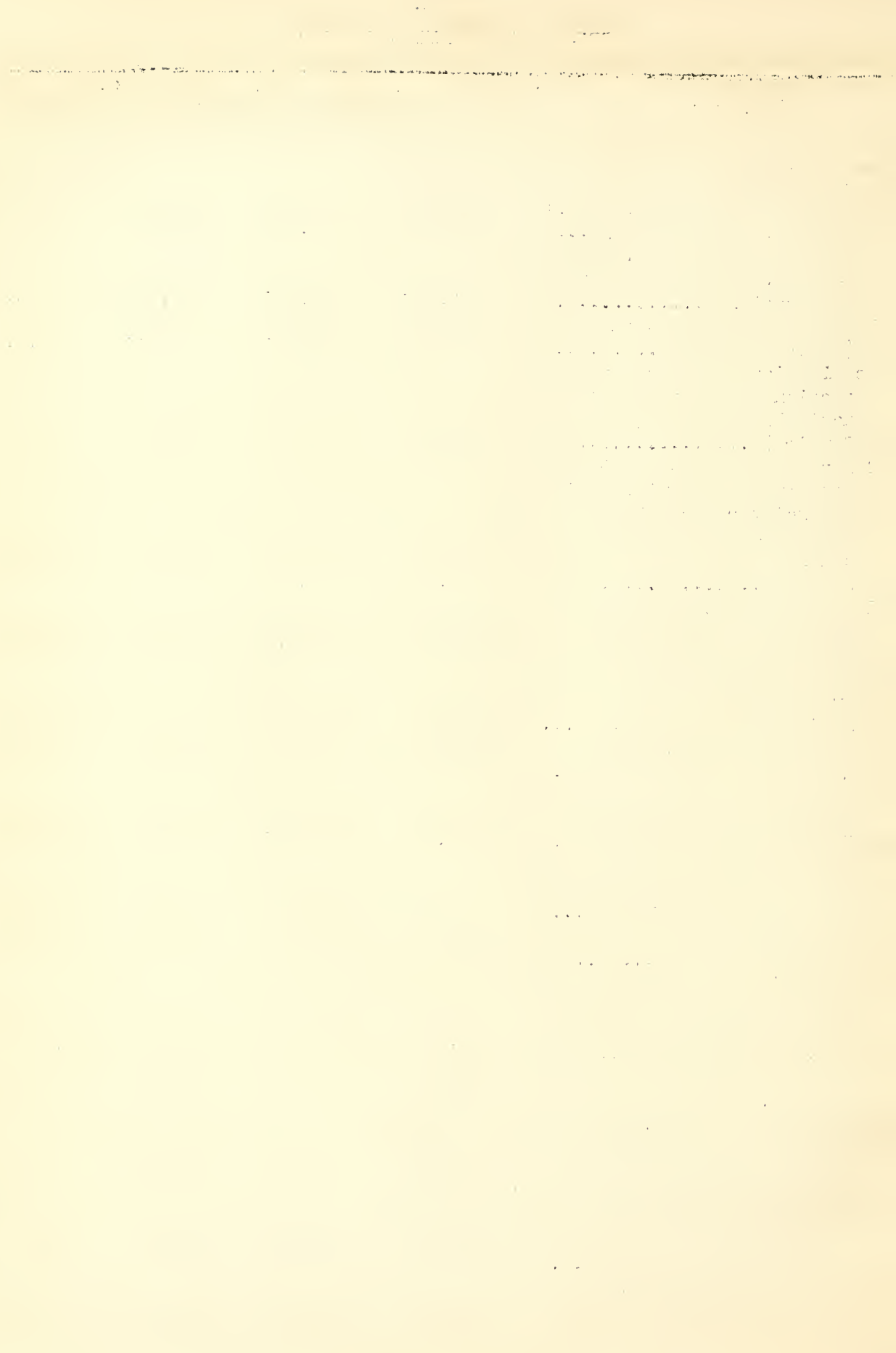
PROJECT STATEMENT

| Projects   | 1941        | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|-------------|---------------------|---------------------|-------------------------|
| 1. Economic research and<br>program service .....  | \$2,369,035 | \$2,241,376         | \$2,029,392         | - \$211,984(1)          |
| 2. Regional and national<br>program development .....  | 989,695     | 943,000             | 854,000             | - 89,000(2)             |
| 3. Cooperative agricultural<br>program formulation .....   | 1,148,200   | 648,200             | 584,000             | - 64,200(3)             |
| 4. Net cost of within-grade<br>promotions .....  | - -         | 29,610              | 28,798              | - 812                   |
| Unobligated balance .....  | 1,146       | - -                 | - -                 | - -                     |
| Total .....  | 4,508,076   | 3,862,186           | 3,496,190           | - 365,996               |
| Transfers to other appropria-<br>tions as shown in Budget<br>schedules .....                           | + 18,385    | + 10,980            | + 10,980            | - -                     |
| Total available .....  | 4,526,461   | 3,873,166           | 3,507,170           | - 365,996               |
| Deduct allotments and transfers:   |             |                     |                     |                         |
| Administrative expenses, Com-<br>modity Credit Corporation,<br>Department of Agriculture               | 60,000      | 60,000              | 62,933              | + 2,933                 |
| Salaries and expenses, Fed-<br>eral Farm Mortgage Corpo-<br>ration, Department of<br>Agriculture ..... | 50,000      | 50,000              | 52,444              | + 2,444                 |
| Forest roads and trails ....   | 44,500      | 34,665              | 34,665              | - -                     |
| Salaries and expenses, Forest<br>Service, national forest<br>protection and management.                | 18,500      | 14,411              | 14,411              | - -                     |



## PROJECT STATEMENT - Continued

| Projects  | 1941    | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|---------|---------------------|---------------------|-------------------------|
| Deduct allotments and transfers - Continued   |         |                     |                     |                         |
| Salaries and expenses, Forest Service, forest survey ...  | \$3,000 | \$2,337             | \$2,337             | - -                     |
| Salaries and expenses, Forest Service, private forestry cooperation .....   | 2,000   | 1,558               | 1,558               | - -                     |
| Forest fire cooperation (Forest Service) .....  | 10,000  | 7,790               | 7,790               | - -                     |
| Acquisition of lands for protection of watersheds of navigable streams (Forest Service) .....   | 12,000  | 9,348               | 9,348               | - -                     |
| Salaries and expenses, Soil Conservation Service (soil and moisture conservation and land-use operations, demonstrations and information) ..... | 75,000  | 58,425              | 61,280              | + \$2,855               |
| Land utilization and retirement of submarginal land, Department of Agriculture  | 740,994 | 574,173             | 50,000              | - 524,173               |
| Salaries and expenses, Agricultural Adjustment Administration .....   | 438,130 | 438,130             | - -                 | - 438,130               |
| Flood Control, General (transfer to Agriculture).   | 625,312 | 397,046             | 173,500             | - 223,546               |
| Conservation and use of agricultural land resources, Department of Agriculture.   | 600,000 | 467,451             | 770,000             | + 302,549               |
| Administration of Federal Crop Insurance Act, Department of Agriculture...  | 82,100  | 81,207              | 85,176              | + 3,969                 |
| Parity payments, Department of Agriculture .....  | 125,000 | 97,375              | 102,134             | + 4,759                 |
| Exportation and domestic consumption of agricultural commodities, Department of Agriculture .....   | 149,000 | 116,850             | 122,561             | + 5,711                 |
| Administration of Sugar Act of 1937, Department of Agriculture .....  | 50,000  | 38,950              | 40,854              | + 1,904                 |
| Liquidation and management of resettlement projects, Department of Agriculture.   | 11,250  | 8,764               | 8,764               | - -                     |
| Administrative expenses, Farm Tenancy, Department of Agriculture .....  | 51,388  | 38,950              | 38,950              | - -                     |
| Salaries and expenses, Rural Electrification, Department of Agriculture .....   | 50,000  | 38,950              | 40,854              | + 1,904                 |





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PROJECT STATEMENT - Continued

| Projects   | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|-----------|---------------------|---------------------|-------------------------|
| Deduct allotments and transfers - Continued  |           |                     |                     |                         |
| Loans, grants, and rural rehabilitation, Department of Agriculture .....                   | \$339,387 | \$305,171           | \$320,086           | + \$14,915              |
| Salaries and expenses, Farm Credit Administration, Department of Agriculture.              | 100,000   | 77,900              | 81,707              | + 3,807                 |
| Development of Water Facilities, Arid and Semi-arid Areas, Department of Agriculture ..... | 25,000    | 30,000              | 31,275              | + 1,275                 |
| Farm labor statistics, Department of Agriculture.  | - -       | 37,000              | 65,745              | + 28,745                |
| Total, Direct appropriation  | 863,900   | 886,715             | 1,328,798           | + 442,083               |

DECREASES

The decrease of \$365,996 in total funds available under this appropriation consists of a decrease of \$812 in the item for within-grade promotions, and a decrease of \$808,079 in transferred funds, partially offset by an increase of \$442,083 in the direct appropriation. In addition, it will be necessary to absorb costs of within-grade promotions in the amount of \$73,707, further reducing the effective working funds by that amount.

The decrease in working funds of \$365,184 in this item consists of:

(1) A decrease of \$211,984 under the project "Economic research and program service."

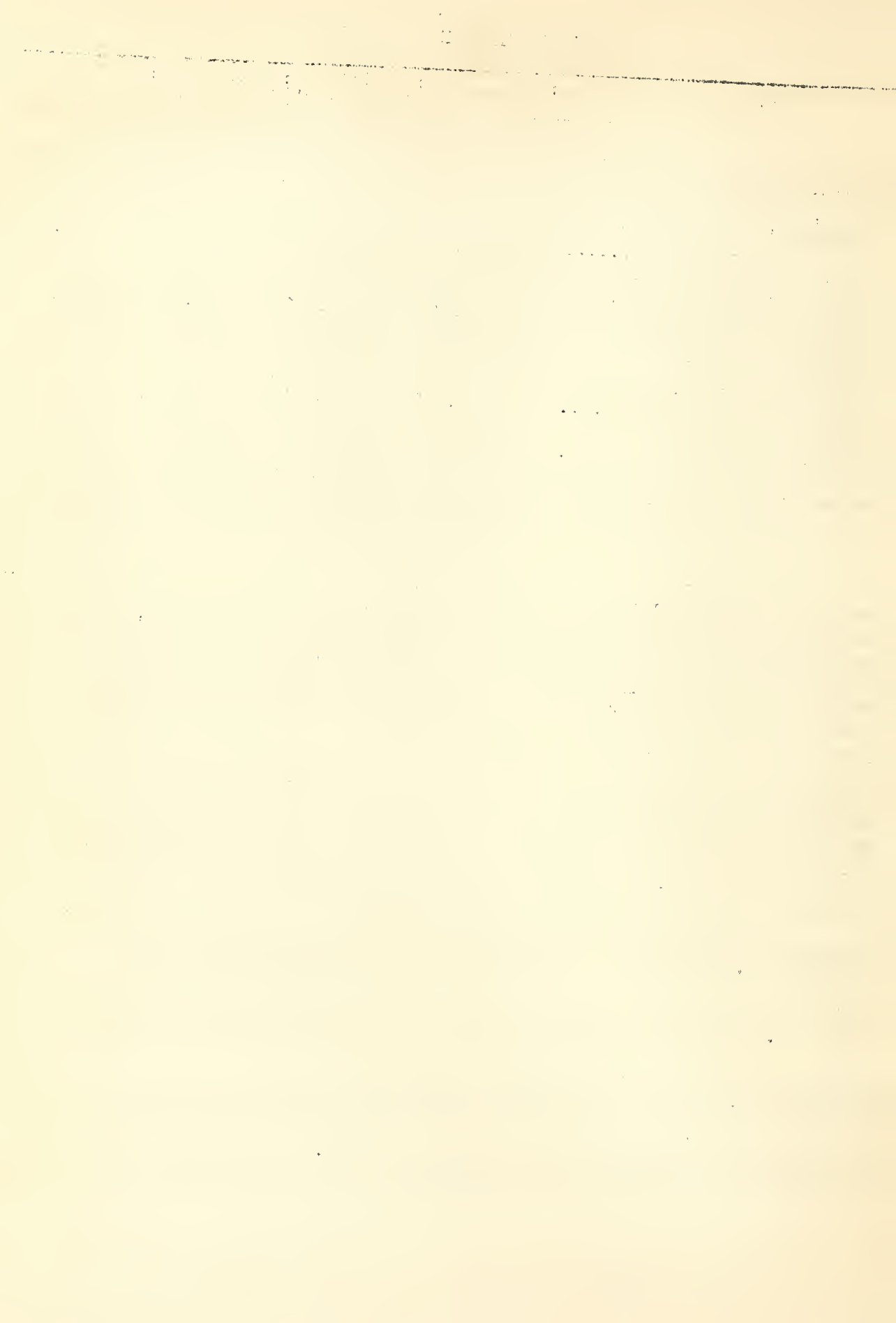
This decrease will be met by reducing personnel, travel and other expenses in connection with the various programs of the bureau.

(2) A decrease of \$89,000 under the project "Regional and national program development."

This decrease will be met by reducing personnel and other expenses on program problems.

(3) A decrease of \$64,200 in the project "Cooperative agricultural program formulation."

This decrease will be met by reducing personnel, travel and other expenses in connection with State and local program planning.



CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

Salaries and Expenses, Bureau of Agricultural Economics--

Salaries and expenses: For acquiring and diffusing useful information among the people of the United States, for conducting investigations, experiments, and demonstrations, and for aiding in formulating programs for authorized activities of the Department of Agriculture, relative to agricultural production, distribution, land utilization, and conservation in their broadest aspects, including farm management and practice, utilization of farm and food products, purchasing of farm supplies, farm population and rural life, farm labor, farm finance, insurance and taxation, adjustments in production to probable demand for the different farm and food products; land ownership and values, costs, prices and income in their relation to agriculture, including causes for their variations and trends, including the employment of persons and means in the District of Columbia and elsewhere, either independently or in cooperation with public agencies or organizations, £ \$857,105, together with \$1,762,895 transferred from other appropriations as herein provided, of which amount not to exceed \$1,515,812 may be expended for personal services in the District of Columbia; Provided, That the Secretary may transfer to this appropriation from the funds available for authorized activities of the Department of Agriculture, such sums as may be necessary for aiding in formulating programs for such authorized activities, including expenditures for employment of persons and means in the District of Columbia and elsewhere £ \$1,328,798, together with not to exceed such amounts from other appropriations or authorizations as are provided in the schedules in the Budget for the fiscal year 1943 for such salaries and expenses, which several amounts or portions thereof, as may be determined by the Secretary, not exceeding a total of \$2,178,372 shall be transferred to and made a part of this appropriation of which total appropriation not to exceed \$1,903,928 may be used for personal services in the District of Columbia, including the salary of the chief of bureau at \$10,000 per annum; Provided, That in addition the Secretary may, subject to the approval of the Director of the Bureau of the Budget, transfer to this appropriation for the purpose of administering and performing the functions of the Division of Agricultural Statistics of the Agricultural Marketing Service such sums as he may deem necessary from other appropriations available to the Department.

The Budget provides for the elimination of the general authorization for transfer to this appropriation from the funds available for authorized activities of the Department of Agriculture, and the substitution therefor of specific authorization for the transfer of funds for administering the Division of Agricultural Statistics, at present financed by appropriation made under the heading "Agricultural Marketing Service" and by allotments to that service.

A second change is in accordance with the uniform language changes of certain staff offices relating to transfers, as explained on page above.





The third language change inserts the words "Including the salary of the Chief of Bureau of \$10,000 per annum."

This language does not increase the salary which the Chief of Bureau is now receiving.

Under the internal reorganization of the Department of Agriculture on October 6, 1938, the Administrator of the Agricultural Adjustment Administration was transferred to the position of "Associate Administrator, Agricultural Adjustment Administration," in charge of program planning with continuation of compensation at the rate of \$10,000 per annum. The incumbent also was designated as Chief of the Bureau of Agricultural Economics. The work of the Division of Program Planning of the Agricultural Adjustment Administration is now an integral part of the Bureau of Agricultural Economics and continues to be directed by the Chief of the Bureau; it has been financed by allotments from the appropriation "Conservation and Use of Agricultural Land Resources" and from unexpended balances of the appropriation "Salaries and Expenses, Agricultural Adjustment Administration." Pursuant to the Agricultural Appropriation Act, 1942, the allotment from the "Conservation and Use" appropriation has been merged with "Salaries and Expenses, Bureau of Agricultural Economics", and in the 1943 estimates, an amount of \$438,000 in direct appropriations is requested in lieu of similar amounts previously made available to the Bureau of Agricultural Economics from the appropriation "Salaries and Expenses, Agricultural Adjustment Administration." Therefore, in 1943 this work, and the salary of the chief of the bureau, will be financed from the consolidated "Salaries and Expenses, Bureau of Agricultural Economics" appropriation, under which special authority will be required for continuation of the salary rate now paid.

The necessity for the new language rests entirely on the readjustment of appropriations. The duties of the position are the same as when it was established in 1938, although the responsibility has increased enormously due to the defense emergency. The present incumbent has received a salary rate of \$10,000 during this entire period and for some years previous to 1938 in his capacity of Administrator of the Agricultural Adjustment Administration.

The new language will merely permit the continuation of established duties at the same rate of compensation.

#### WORK UNDER THIS APPROPRIATION

Objective: To serve the Department as its central economic-research and program-formulating agency through (a) the conduct of research on the economic and social problems of agriculture, and the continuous integration of such research with the formulation and development of agricultural programs; (b) the formulation and development, in cooperation with the departmental agencies concerned, of programs authorized by Congress for the adjustment of agricultural production and maintenance of adequate supplies, improvement of farm income, rehabilitation of farm families in need, conservation and wise use of soil and forest resources, crop insurance, strengthening of agricultural credit facilities, rural electrification, extension of farm ownership and improvement of tenure, and the improvement of the marketing and distribution of farm products; and (c) sponsorship of cooperative land-use planning, conducted jointly in the counties and States by farmers, trained technicians, and representatives of various State and departmental agencies.





The problem and its significance: In carrying out legislation enacted by Congress since 1933, the Department has been confronted with many complex and intricate problems. It has been necessary to set up new agencies and to devise new machinery to carry out the various measures designed to improve agricultural conditions and to meet the war emergency.

As these various activities developed it became increasingly urgent that more attention be given to the interrelation of the different phases of the work, and the integration of the efforts of all agricultural workers, concerned with any one problem or area. In October, 1938, the Secretary of Agriculture, therefore, designated the Bureau of Agricultural Economics to serve as the general agricultural program planning and economic research service for the Department.

Under the Secretary's order all action administration is grouped around a single core of program planning and the Bureau of Agricultural Economics acts as a staff agency of the Department in helping to bring into closer relations all phases of the Department's work. This bureau has been assigned the specific duty of working with all the action agencies to the end that the Department may present a unified program when it reaches the farm.

General plan: In carrying out its responsibility as a central agency for research and program formulation with reference to the social and economic problems of agriculture, the interbureau-committee method has been adopted as a means of focussing the results of research upon specific problems and of securing coordination of programs. A general memorandum of understanding was entered into by all of the Agencies of the Department concerned with the economic and social problems of agriculture, and a large number of committees have been organized under the leadership of this Bureau. These committees have dealt with such subjects as production goals for 1942; parity price and income; fats and oils; fertilizers; agricultural machinery and materials; food distribution; farm labor; the impacts of war and the defense program on agriculture; and many others.

Examples of progress and current program: The progress of the Bureau can best be discussed under the main categories as follows: (1) economic research and program service; (2) regional and National program development; and (3) co-operative agricultural program formulation.

#### 1. Economic research and program service

Under "Economic Research and Program Service" are included the basic fact-finding researches which serve as the economic foundation upon which to build the departmental programs. This work is largely statistical and analytical. It includes such subjects as price and income analysis, studies of credit, taxation, insurance, costs, price margins, economic studies of marketing and transportation, measures of consumption, and estimates of quantities which should be produced of various products to meet probable needs.

During the present war emergency, every effort is being made to service the entire Departmental defense program by providing statistical and economic analyses, and by working with the various defense agencies in meeting the many

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difficult problems with which the Department is confronted. These problems usually call for the assembling and analysis of a large number of data. The factual background must be provided quickly or it is too late to serve as an effectual guide to action. The Bureau is now confronted with a multitude of requests for analytical studies, and anticipates many additional demands as well, since it realizes that far more information is needed than is now available if defense and post-defense adjustments are to be made with the minimum of loss and suffering.

Demand and price level analyses: Continuous study of the probable demands for agricultural products is basic to any planning for agriculture. During the defense period nearly every action taken by the Government in meeting the emergency has repercussions upon the cost of farm products or the demand for farm products. Many questions are arising now as to what prices are necessary to compensate producers for the supplies that are required for domestic and available for foreign markets. These questions will continue to arise, and as changes occur in the world economy, continuous reappraisal is essential. It will be much more difficult in the future for farmers to predict changes in demand and price because of the rapid changes which appear to be in prospect both in the domestic and world situations.

Analyses are made by this Bureau of demand and price levels and all pertinent facts published in regular and special reports. The monthly release carries a summary analysis of the effects of economic changes on agricultural prices. Special studies are made in answer to many requests from defense agencies and others, and for use of Congressmen in formulating legislation. For example, much testimony was given, and very exhaustive information has been prepared for Congressional Committees bearing upon parity prices and upon proposals to check inflation by price control measures. Intensive work is being continued on the subject of parity prices since the whole legislative program for agriculture hinges upon having dependable current information.

Since it is recognized that price control alone cannot solve the problem of inflation, study is being given to the effects upon agriculture of various measures designed to stimulate production of the products needed by the defense program, and to discourage practices which will be detrimental from the long time viewpoint.

Commodity price analysis: With the changing pattern of requirements for agricultural commodities, with the shifting of foreign demand, and with the probable changes in both the foreign and domestic consumption patterns, the problems of the farmer-producers of different commodities have been greatly intensified. Answers must be given to many questions which are essential to the welfare of specific farmer groups and hence to the harmonizing of the whole agricultural program. The effect of the changing economic situation may be vastly different on the wheat farmer than on the cotton farmer, on the New Jersey vegetable grower than on the Rio Grande Valley vegetable grower. Only specialists who devote most of their time to the intensive study of a specific commodity or a few related commodities can have the background to analyze the effects of changes





in the consumption, production, and price of a commodity or related commodities. In order to have a healthy agricultural system, every producer group must be adjusted to the whole agricultural program.

Each month the commodity specialists prepare situation reports describing and analyzing the current developments in the commodity field. These analysts follow developments in their fields, and assist the defense program by pointing out the significance of the extraordinary events of the current period. Farm planners, program administrators, and farmers themselves receive reliable information on the effect of current events on the commodity situation through monthly publications which cover cotton, dairy products, fats and oils, feed grains, fruit, livestock, poultry and eggs, vegetables, wheat and wool. Tobacco is covered quarterly and information on other products at intervals.

A statistical service is maintained which keeps current many statistical series and handles hundreds of special requests for information not covered in the regular releases. The economists are called upon constantly for advice and assistance in the solution of problems pertaining to production, consumption, demand for and supply of farm commodities. Problems which have arisen in the administration and effective coordination of the lease-lend food program, and British purchases of agricultural products have been channeled to the Bureau for solution. Analytical work is done to provide a basis for the agricultural policy and the successful administration of the agricultural program.

Income and consumption analysis: The study of the relationship of agriculture to the total economy centers about the analysis of income. A major part of the problem within agriculture is the distribution of income among producer groups and among regions. The Bureau is working on measures which will facilitate analysis of the distribution of income among farm families and of the variations in income by areas and by producer groups. Estimates of farm income involve the assembling and evaluating of data relating to prices received, quantities produced and marketed, other income, and expenditures by farmers.

The income data are analyzed, trends pointed out, comparisons with previous periods shown, and index numbers prepared. Interpretations of these data in terms of significant variations and relation to other information bearing upon the agricultural situation are in constant demand from agricultural workers, administrative officials, members of legislative bodies, and others.

Marketing costs and pricing processes: No reforms of a fundamental character in the marketing system can be made without a thorough research program to furnish the basic facts about costs, methods, and practices. It is necessary also to interpret these facts in terms of recommendations which the farmer and the public can use in developing sound policies for handling their specific problems.





This Bureau attempts to determine definite charges for moving farm products from farmers to consumers; to locate inefficient high-cost operations in marketing; and to measure gains obtained through reorganization of different parts of the marketing structure. During the year a report was issued which provides a price-spread measure of marketing charges by months and years since 1913. A study was begun for the purpose of working with price spreads and marketing costs for important groups of farm products. One deals with food products, another with cotton products, and a third with wool products. Preliminary work on the food products margin study shows that current national food marketing bill is about \$9,000,000,000 annually. This study includes estimates of family expenditures and margins for all foods by months since 1913 and by years since 1890; estimates of national food expenditures; estimates of the national marketing bill and its break-down by functions; and an analysis of the relation of margins to prices, to supply, and to other factors affecting marketing costs.

A study has been partially completed which is aimed at a very broad and general analysis of the entire structure of marketing costs and charges, and in particular, of shifts and changes in the relations between elements of marketing costs in relation to the functioning of the national economy and to the economic status of farmers.

A cooperative study of marketing costs for fresh fruits and vegetables has been made in New York. This survey breaks down the consumer's dollar into charges for retailing, for wholesaling and jobbing, and for transportation, and shows the return to the shipper. This Bureau has completed statistical summaries and charts showing these New York City marketing and transportation charges by commodities separately for truck receipts and for rail and boat receipts. This is one of the most extensive studies of marketing charges in fresh fruits and vegetables made by any agency.

Information is furnished continuously to defense agencies on specific marketing problems and to committees of Congress and others covering marketing and transportation.

Farm credit: The defense program is intensifying the need for more research and service on agricultural credit problems so as to meet the production needs yet minimize the dangers of too great expansion of credit. In the previous world-war period, personal and collateral loans to farmers held by commercial banks increased from \$1,608,000,000 in 1914 to \$3,870,000,000 at the end of 1920. During the same period, farm-mortgage indebtedness increased from \$4,348,000,000 to \$10,221,000,000 and the cost of Government services represented by farm real estate taxes increased about 70 percent. The liquidation of this excessive debt structure during the post-war period resulted in insolvency for large numbers of farmers and of the institutions serving their credit needs. It is expedient therefore that the research in the field of agricultural finance be focused at current credit developments to guard against the development of unsound credit practices.

Data are compiled and analyses made of the credit situation, and in cooperation with credit institutions and State agencies recommendations are made for changes in credit practices to meet changing needs. Assistance is



given in planning the Federal mortgage-credit programs. Analyses are being made of the existing farm-mortgage credit facilities for the purpose of ascertaining how the old and new Federal agencies could better fit into the entire agricultural credit field. A volume of information is compiled and analyzed concerning the whole field of farm credit for use of administrative officials in planning programs. These studies are closely integrated with rehabilitation work and financing of low-income farmers, commodity loans, production credit and other programs.

Farm taxation: Annual estimates are made of farm real estate taxes. Data on tax delinquency, trends in farmer taxes, fiscal problems of local government, rural public expenditures, and other matters are compiled. Much analytical work is done and the results made available to administrative agencies. Consideration is being given to the consequences of the national defense effort to farmers' taxes and to the ability of farmers to pay them both now and in the post-defense period.

The Bureau studies the amounts, trends, purposes, and conditions of State and local debts in farming areas. From this statistical basis it is possible not only to observe conditions under which the use of public credit is advantageous, but also to suggest modifications in its use that in future will help to avoid excessive financial burdens. Where communities are already hopelessly involved in public debt it is possible to analyze methods and possibilities of relief such as State aid, Federal refinancing, modification of terms, etc. In addition suggestions are made as to State and local credit policies, appropriate both for periods of special national emergency and of subsequent readjustment.

Agricultural insurance: The most important contribution arising out of research on agricultural insurance continues to be in the field of crop insurance. The plan for crop insurance for wheat which was formulated in the Bureau of Agricultural Economics became in large measure the basis for the report of the President's committee, which in turn served as the basis for the Crop Insurance Act. Research work has continued on the operation of the act and in providing the actuarial bases for crop insurance for cotton. Cotton is the second major crop for which a program of crop insurance has been provided by Congress, and responsibility for its administration, like the wheat program, will be in the Federal Crop Insurance Corporation. Preliminary research work is being done now on corn, citrus fruits, tobacco, rice and other commodities.

Adjustments in farming: Research work in this field is being directed to the stimulation of the production of agricultural commodities needed during the emergency, and the facilitation of desirable shifts in farming designed to meet all human and conservation needs of the nation's future. The work involves the coordination of the research and planning work on the farm management aspects of agricultural adjustment with all other farm programs. Many special studies are being made such as farm costs and returns, technology on the farm, and special needs of various regions for assistance. The studies on costs are now furnishing key information in the consideration of price control measures.





Farm labor: Studies are made on the supply and demand for farm labor, anticipated shortages and measures for maintenance of an adequate farm-labor supply. New techniques have been necessary in reflecting the rapidly changing situation. Reconnaissance surveys are being made and assistance is being given to defense agencies in obtaining labor. Effort is made to keep available reliable current information by areas and to assist all agencies concerned with placement. Because of the growing importance of farm-labor shortages, work is being directed almost exclusively to the study of prospective shortages and the means of meeting them.

Aid to distressed groups: Since 1934, the Federal Government has engaged in an unprecedented effort to provide specialized assistance to distressed agricultural groups. The work in the Department of Agriculture is now centralized in the Farm Security Administration. To provide information on a nationwide scale concerning the way this program is working, the Bureau of Agricultural Economics began a study of 40,000 borrowers located in all 48 States--a cross section of all borrowers during the 3 years ended February 1939. The study was undertaken at the request of the Farm Security Administration. Completed tabulations show (1) the borrowers' social and economic characteristics at the time they applied for their first standard loan and their economic behaviour during the crop year before receiving the first loan, and the trend in the characteristics of borrowers selected for the program, (2) the action taken by the Farm Security Administration through its loan, grant, and related activities to rehabilitate the borrowers, and (3) the progress made by borrowers since coming into the program. Tabulations are being made showing the social and economic characteristics associated with progress or failure in rehabilitation.

Estimates of the number of persons on farms, and information on migrations and trends, are serving as a basis for rendering assistance to distressed areas, and for a general understanding of the agricultural situation. Cooperative studies are being made of levels of living, health and nutrition, and other matters bearing upon rural welfare.

The benefits of surplus disposal programs have been analyzed by the Bureau and recommendations made for the improvement of these programs so that they will yield greater benefits to farmers and low-income consumers.

## 2. Regional and national program development

Under the project "Regional and National Program Development" the facts are brought to bear upon broad questions concerning the National economy and of specific areas and regions for which coordinated programs are needed. Most of this work is done through interbureau committees which draw upon the research workers for the specific information needed in formulating departmental policies.

The interdependence of the programs of the Department's new agencies for the relief of agriculture made it clearly necessary that a definite procedure should be worked out for coordinating these activities into one well-rounded Departmental program. As a first step in this direction, the Bureau of Agricultural Economics was directed to organize "Interbureau Coordinating Committees,"





made up of representatives of all interested bureaus and agencies. These committees make a coordinated attack on the problems to be considered, prepare recommendations to the Secretary for action, and reports of their findings for the benefit of agricultural workers and the public. In many cases subcommittees have been organized to cover specific phases of the work, or particular regions or areas where problems are similar. Some of the subjects covered by these committees are shown below.

|  |                                    |
|--|------------------------------------|
| Production Goals for 1942              | Wenatchee-Okanogan Fruit Pro-      |
| Parity Price and Income                | ducing Area.                       |
| Farm Labor                             | Mississippi Backwater Areas Study, |
| Impacts of War and Defense Programs on | Yazoo Segment                      |
| Agriculture                            | Pecos Joint Investigation          |
| Rural Electrification                  | Land Acquisition                   |
| Farm Mortgage Credit Policy            | Columbia Basin Irrigation Project  |
| Crop Insurance Program                 | Lake States Cutover Area           |
| Agricultural Policies for the West     | State Legislation for Better       |
| Technology on the Farm                 | Land Use                           |
| Special Fiber Crops                    | Fats and Oils                      |
| Agricultural Machinery and Materials   | Fertilizer                         |

Already many specific recommendations have been made for shifting activities so as to speed up the production of vital products, supply the farm needs for labor, machinery, and other products, and to facilitate the purchase and transportation of defense material.

Production goals for 1942: In order to stimulate the production of the agricultural commodities needed in the war program, and to give intelligent guidance to farmers in expanding and shifting their farm operations, a committee was organized to study and report on agricultural production goals for 1942. Subcommittees of experts drawn from all agencies in the Department were appointed for the major commodities. These committees studied the consumption needs of the country, and probable demand from foreign countries. Their recommendations called for sharp reductions in some crops and increases in others such as livestock, dairying and poultry products. The goals were published for the country as a whole and a suggested distribution by State was shown under each crop or class of livestock. This information is of great value in helping to keep production in line with probable needs.

Columbia Basin joint investigations: The Columbia Basin reclamation project in the Pacific Northwest furnishes an example of the coordinated effort of many interested agencies. This project, contemplating the development of more than a million acres of irrigable lands, is the largest of its kind yet undertaken by the United States Reclamation Service and has significance both for agricultural stabilization in the area and for post-emergency agricultural adjustment.

To develop plans and programs for the successful settlement of this great area, comprehensive studies are being conducted through the cooperative efforts of nearly forty Federal, State and local agencies. Representatives of these agencies have been organized into committees covering the various social and economic problems connected with bringing new land into agricultural production.



Post-defense programs: The Secretary of Agriculture has asked the Bureau of Agricultural Economics to organize an interbureau coordinating committee on post-defense programs. The reason for this is, of course, an intelligent concern for the future, and to guard against depression when the defense effort ceases.

This committee is organized on a regional basis and regional chairmen, drawn from the various cooperating agencies, have been assigned to each of the nine regions. The work of the bureau will revolve very closely around this committee during the next year and the most complete cooperation will be maintained with all interested agencies of the government.

While the work of all committees is now keyed to the war effort, attention will be given to developments which will shape the future course of the Nation as a whole. Effort will be made to build up agricultural production on a sound basis and help to prevent costly mistakes in planning.

### 3. Cooperative agricultural program formulation

The third subdivision of the Bureau's work, "Cooperative Agricultural Program Formulation," is concerned with farmer cooperation in making and carrying out agricultural programs at the State, county and community level.

Since the inauguration of cooperative land-use planning in the fall of 1938, the Department of Agriculture and the Land-Grant Colleges, under the leadership of the Bureau of Agricultural Economics and the State Extension Services and Experiment Stations have endeavored to fulfill this growing demand by setting up and servicing State, county, and community agricultural planning committees as rapidly as resources would permit. As a result, active planning work is under way in 1,891 counties and over 8,800 communities in 47 States. This represents an increase of 458 counties over 1940 and 771 over 1939. The number of community committees, likewise, has increased by 1,756 over 1940 and 2,003 over 1939.

Nearly 125,000 farm men and women are serving as regular members of agricultural planning committees and half a million or more additional farm people are attending open community planning meetings to review, discuss, and take action upon the plans developed for their localities. Over 18,000 representatives of local, State, and Department agricultural agencies are working side by side with these farm men and women in the analysis of critical problems and in the formulation of plans and programs for their alleviation.

By pooling their knowledge, experience, and factual information, farmers and their public servants, through the medium of planning committees, are working out plans designed to assure (a) that both emergency and long-time public action programs, as they are carried out, will fit the particular needs and conditions of their rural area; (b) that farmers, functioning as individuals and in groups, may help themselves in carrying out appropriate types of local agricultural adjustments and not depend entirely upon public agencies to perform functions which farmers themselves can, and should, assume; (c) that the several action programs of Federal, State, and local branches of government will be harmonized and carried out with a minimum of duplication and delay; and





(d) that farm people will participate to the fullest possible extent in the formulation of agricultural affairs, thereby strengthening democracy in this country.

Planning activities and accomplishments relating to the war effort.

The major accomplishment which related directly to National defense was the development of unified State agricultural programs to aid in defense and meet the impacts of war. In January 1941 the Secretary of Agriculture issued a request to all State planning committees for the preparation of "A Unified State Agricultural Program to Meet the Impacts of War."

The speed and efficiency with which the planning committees met the Secretary's request illustrate the value of democratic planning in agriculture. Working without pay, the farmer members of the State planning committees, in cooperation with the agency representatives and with the assistance of various technical personnel, developed programs and submitted reports to Washington by June 1, 1941. These programs and the reports considered such defense problems as the decentralization of defense industries, food and feed requirements during the emergency, increased forest fire protection, rural defense housing, securing necessary supplies of fertilizers and farm machinery, coordination of marketing and distribution of agricultural products, curbing non-essential spending, financing of defense spending, methods of counter-acting and minimizing the farm labor shortage, and utilizing soil conservation techniques and range and water facilities so as to assure a continued ample supply of agricultural products. Other subjects considered in connection with their relation to national defense were health and nutrition, education and information, agricultural finance, Pan-American relations, and the implications of post-war conditions to agriculture.

During June seven sectional conferences were held for the purpose of summarizing and coordinating the program reports of the several states in the various sections of the country. A national report and summary was then prepared and presented to the Agricultural Program Board in July 1941. As a result, steps are being taken to coordinate and obtain action on these recommendations.

Land use area mapping, analysis, and classification: The mapping and classification of land use and problem areas continues to constitute an important phase of the agricultural planning program. By June 30, 1941, this type of work had progressed to a point where 1,229 counties had actively initiated some form of mapping. Of this number, 789 counties had completed maps and reports, at least in preliminary form.

The area maps and reports have been particularly valuable as educational devices and as an aid to public agencies in developing their programs and policies. The construction of the maps is in itself a valuable educational experience for the farmer committeemen and the agency representatives who participate in the process. They help to narrow down complicated issues to specific areas about which there is local understanding and opinion and a desire for corrective action. They are useful, too, in informing the agency personnel and the general public concerning the conditions and needs of agriculture in the locality.





Agricultural adjustments facilitated: Working in close cooperation with the Agricultural Adjustment Administration, the Farm Security Administration, the Soil Conservation Service, and other action agencies, local planning committees in all States have been helpful in effecting needed agricultural adjustments, and in adapting the National farm programs to local conditions.

In New England and the cut-over areas of the Nation, a large number of the farms are too small to yield adequate economic support for farm families. For instance, in Oneida County, Wisconsin, a local survey indicated that only 26% of the farms were full-time self-sustaining units. In regions such as this, the planning committees have given consideration to the development of supplementary industries such as farm forestry, game reserves, commercial recreation, handicraft work, roadside markets, and the tourist trade.

A number of States have conducted research projects in farm management and organization, at the request of planning committees. Rhode Island, for instance, has devoted considerable research to the resources and needs of part-time farmers in that State. In a Florida community it was decided that more dairy production was needed. Lack of a conveniently located cream station made this impractical so the planning committee interested neighboring communities and secured data on potential production which resulted in a distant creamery locating a station in a nearby town.

Encouraging proper land use: A major concern of many planning committees has been the proper use of land resources, and the development of various plans and programs that would encourage better land use.

In Nebraska, three county planning committees (Sioux, Scotts Bluff, and Morrill), have combined their efforts to improve the use of land resources in areas common to the three counties. Realizing that heavy debt burden, wind erosion, uneconomic units, tax delinquency, and other agricultural problems can best be solved cooperatively, each county committee designated two of its members to serve on a joint tri-county committee. This tri-county committee submitted a proposal to the Farm Security Administration requesting that the area be designated as a special problem area. The Farm Security Administration has approved this proposal and set aside funds for doing the work. In June 1941, the tri-county committee and others met to incorporate the North Platte Valley Cooperative Tenure Improvement Association. The Association has been empowered to lease, and purchase where necessary, with funds borrowed from the Farm Security Administration, the sandy irrigated land. The land will then be leased to low-income farmers on a plan of soil rebuilding. The local planning committees have stressed that control of the land, adequate finance, erosion control, and supervision, should be included in any rehabilitation plan developed for the area.

Soil and water conservation: Practically all of the county committees have been active in developing measures to conserve the soil and water resources of their areas. A number have assisted in obtaining passage of State Soil Conservation District Acts, in petitioning for soil conservation districts and in publicizing the advantages of such legislation. The committees have also furnished the Soil Conservation Service with basic data on which to set up and operate soil conservation districts. Others have assisted in



making preliminary flood control area surveys. In Merrimack County, New Hampshire, the local committee vigorously championed the passage of a State law legalizing purchases by local governmental units of isolated properties resulting from a local flood control project. In Culpepper County, Virginia, the planning committee was interested in securing more soil conservation and decided the Agricultural Adjustment Administration program offered a logical means of accomplishing this goal. Accordingly, they encouraged greater participation in the Agricultural Adjustment Administration program and as a result, more than 165 farmers are participating in the program this year who had never participated in any previous Agricultural Adjustment Administration program.

Taxation problems: Local planning committees have been instrumental in numerous instances in obtaining more equitable assessments of agricultural land, and in bringing farm taxes more nearly in line with farm income and with urban taxes. In Washington County, Maryland, for instance, the county and community planning committees have assisted in working out a more equitable basis for assessing orchard property, and have won the attention of county officials in the matter. In Iowa, a State subcommittee on taxation and assessment, and upward of forty county committees, are working closely with the State Tax Commission in improving the farm real estate assessment situation.

Rural zoning: The agricultural planning process has awakened increased interest in rural zoning as a means of obtaining better land use, and committees have been active in promoting State and local legislation. In South Dakota, for instance, the Corson County Planning Committee, with the assistance of State planning leaders, was largely responsible for the adoption of a rural zoning enabling act by the State Legislature in March 1941.



SUPPLEMENTAL FUNDS

Direct Allotments

| Projects  | Allotments,<br>1941 | Estimated<br>allotments,<br>1942 | Estimated<br>allotments,<br>1943 |
|---|---------------------|----------------------------------|----------------------------------|
| <u>Special Research Fund,</u><br><u>Department of Agriculture: For</u><br><u>special researches on economic</u><br><u>factors affecting farm industry.</u>  | \$60,860            | \$38,645                         | \$36,440                         |
| <u>Emergency Relief, Agriculture,</u><br><u>Planning and Review of Works</u><br><u>Projects Administration Projects</u><br><u>(Transfer from Works Projects</u><br><u>Administration): Planning and</u><br><u>review of projects.....</u> | --                  | 6,420                            | --                               |
| <u>Emergency Relief, Agriculture,</u><br><u>Federal Non-Construction Projects</u><br><u>(Transfer from Works Projects</u><br><u>Administration).....</u>  | 94,844              | --                               | --                               |
| Total, Supplemental funds<br>(direct allotments).....   | 155,704             | 45,065                           | 36,440                           |





OFFICE OF FOREIGN AGRICULTURAL RELATIONS

|  |                  |
|--|------------------|
| Appropriation Act, 1942 plus \$2,125 supplemental for within-grade promotions..... | \$223,841        |
| Budget estimate, 1943.....   | <u>223,795</u>   |
| Change from 1942:  |                  |
| Net reduction in working funds.....  | -2,016           |
| Additional for administrative promotions.....                                      | <u>1,970</u>     |
| Net decrease.....  | <u><u>46</u></u> |

PROJECT STATEMENT

| Projects                                    | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|-----------|---------------------|---------------------|-------------------------|
| 1. Foreign agricultural relations.....      | \$196,218 | \$221,716           | \$219,700           | - \$2,016               |
| 2. Net cost of within-grade promotions..... | - -       | 2,125               | 4,095               | + 1,970                 |
| Unobligated balance                         | 178       | 0                   | - -                 | - -                     |
| Total.....                                  | 196,396   | 223,841             | 223,795             | -46                     |

INCREASES OR DECREASES

The decrease of \$2,016, will be met by curtailing purchases of office furniture and equipment during the fiscal year 1943.

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (new language underscored, deleted matter enclosed with brackets).

Salaries and expenses: For carrying out the functions of the Secretary of Agriculture under the Act of June 5, 1930 (7 U.S.C. 541-545), independently and in cooperation with other branches of the Government, State agencies, purchasing and consuming organizations, and persons engaged in the production, transportation, marketing, and distribution of farm and food[products; to enable the Secretary of Agriculture to cooperate with American republics, as provided for by the Act approved August 9, 1939 (22 U.S.C. 249), and] products including the employment of persons and means in the District of Columbia and elsewhere, and the purchase of such books and periodicals and not to exceed \$500 for newspapers as may be necessary in connection with this work, \$223,795: Provided, That when official activities financed from funds available to the Department of Agriculture are performed outside the continental limits of the United States, the Secretary may authorize the employment of personnel or the incurrence of expenses in accordance with the provisions of Section 2 of said Act of June 5, 1930.



This change is recommended in order to provide uniform rules and regulations governing the compensation, travel and leave regulations of the Department of Agriculture officers while on official duty in foreign countries. It is not anticipated that this authority would require any additional funds.

It has been ruled by the Department Solicitor that the provisions of Section 2 of the above Act apply only to officers employed under funds appropriated to the Office of Foreign Agricultural Relations. Among other things, Section 2 provides that

(1) The foreign service officers of the Department shall be appointed to such grades and at salaries in those grades as are comparable to those paid other officers of the Government for analogous foreign service.

(2) Foreign service officers may be assigned for duty in the United States for a period of not more than three years.

(3) The Secretary of Agriculture is authorized to pay the expenses of transportation and subsistence of officers in the Foreign Agricultural Service of the United States and their immediate families in going to and returning from their posts under orders from the Secretary of Agriculture. The Secretary of Agriculture is further authorized, whenever he deems it in the public interest, to order to the United States on his official leave of absence any Foreign Agricultural Service officer who has performed three years or more of continuous service abroad: Provided, that the expenses of transportation and subsistence of such officers and their immediate families in traveling to their homes in the United States and return shall be paid under the same rules and regulations applicable in the case of officers going to and returning from their posts under orders of the Secretary of Agriculture when not on leave: Provided further, that while in the United States the services of such officers shall be available for such duties in the Department of Agriculture and elsewhere in the United States as the Secretary of Agriculture may prescribe. Any officer in the Foreign Agricultural Service, in the discretion of the Secretary of Agriculture, may be given leave of absence with pay for not to exceed thirty days for any one year which may be taken in the United States or elsewhere, accumulative for three years, under such rules and regulations as the Secretary of Agriculture shall prescribe.

The Department's foreign activities, particularly in the Latin American field, involve officers of a number of bureaus and offices and the employment of individuals under funds allotted to the Department from other Government agencies--more especially, the Office of the Coordinator of Inter-American Affairs and the Department of State--for agricultural work.

Most of the agricultural missions that are being sent to Latin America are at the specific request of the respective governments, and the urgency of the work demands that recruiting be expedited to the utmost. The nature of the work is such, however, that qualified individuals frequently cannot be found in the Government service or on the registers of the Civil Service Commission. Frequently it is necessary to employ individuals who have had specific experience in tropical or semi-tropical agriculture. Since that type of agriculture has not been emphasized by the Department, it is necessary to recruit personnel from outside agencies such as the colleges and universities, the United Fruit Company, and others. These activities have been directly in the tropical agricultural field. Extension of the authority now existing





in respect to the Office of Foreign Agricultural Relations in regard to the establishment of grades for foreign service officers and recruiting of personnel to other bureaus and offices of the Department engaged in similar lines of work in Latin America will not only establish a uniform procedure for all of the bureaus and offices but will also expedite recruitment.

Because of the cooperative nature of the work it would also seem to be a good administrative procedure to extend to other bureaus and offices of the Department the provisions of Section 2 of the Act of June 5, 1930, in respect to travel allowances and leave regulations. Under the present situation it is quite likely that an officer of the Office of Foreign Agricultural Relations would be sent to South America on a cooperative mission with an officer of the Bureau of Plant Industry or some other bureau, and although both would be performing similar types of work they would receive different rates of compensation, different travel allowances and operate under different leave regulations. Furthermore, if the period of foreign duty is sufficiently long to justify it, the officer of the Office of Foreign Agricultural Relations would be accompanied by his family, who would travel at Government expense, whereas this would not be the case for the officer of the other bureau. While this latter type of expense is not envisaged during the course of the current year, the longtime aspects of the Department's program in the Latin American field will most certainly require the detail of officers to posts in Latin America for relatively long periods of time, in which case they should obviously be accompanied by their families. While there may not be many such assignments, it is very desirable that all employees so assigned be governed by uniform rules and regulations.



## WORK UNDER THIS APPROPRIATION

Objective: The Office of Foreign Agricultural Relations was the first office in the Department of Agriculture to be designated a defense agency. Since that designation on November 4, 1940, the work of the Office has been largely concerned with defense activities. Consequently, the outbreak of war means an intensification rather than redirection of the work of the Office in order that it can make the maximum possible contribution to the war effort.

Since the Office is concerned with foreign relations its activities under war conditions may be divided into two broad spheres: (1) cooperating with the friends and allies of the United States in activities touching on agriculture and (2) analyzing agricultural activities and food conditions in enemy countries in order to provide information that will be useful both to the armed forces of the United States and to the policy-making officials of the Government in directing the war program.

The plan: In the first sphere of activity the primary example concerns the work of the Office in coordinating the Department's lend-lease activities with the Lend-Lease Administration, the British Food Mission and representatives of other foreign governments eligible to receive aid under the Lend-Lease Act. Another outstanding example concerns the direction and coordination of the Department's part in the program of cooperation with the Latin American Republics. Specifically this involves encouragement of the production in Latin America of rubber, quinine and other tropical and semi-tropical products not produced in the United States, many of which are of a strategic and critical nature. A third example concerns discussions of surplus problems arising in Western Hemisphere and British Empire countries. In this field definite progress has been made in working out international understandings and agreements which will serve to reduce the impact of the war on surplus problems of such commodities as wheat, cotton and coffee.

In the second sphere the Office has made extensive analyses of the food situation in European countries, some of which have been made at the specific request of the president. The Office is currently engaged on a thorough-going study of the food and fiber situation in Japan and the countries occupied by Japan.

All of this work requires the closest relations with a large number of other governmental agencies. These relations are maintained primarily through Office representation on important interdepartmental committees or boards, such as the Interdepartmental Committee of Liaison Officers of the Lend-Lease Administration, the Board of Economic Warfare, the Export-Import Bank, Trade Agreements Committee, the Inter-American Financial and Economic Advisory Committee and the Interdepartmental Committee for Cooperation with Latin America.



While most of the efforts of the staff of the Office must be devoted to current activities concerned directly with the war effort, attention is also being given to problems of reconstruction after the war and the problem of adjusting American agriculture to the world situation that will then prevail.

Examples of progress and current programs:

Collection and analysis of information on foreign agricultural production and trade and government policies: The basic work which has long been performed by the Office has in 1941 been so directed as to be of maximum value in connection with the Government's activities in the fields of export and import control, economic defense, and lend-lease operations. In addition to collection, analysis and dissemination of information on foreign agricultural production and trade and government policies and basic research in respect thereto, the professional members of the Office have been called upon to serve on numerous inter-departmental committees established in connection with these programs. A substantial amount of work has been done in connection with the trade agreements program, although activities in this field have been confined largely to Latin American countries.

Among the more important tasks performed have been the extensive studies of the food resources of European and other countries involved in the war, two of which were prepared at the special request of the President. A basic statistical study of production, imports, exports and consumption of the five chief cereals, as well as potatoes and sugar, designed to show the relative self-sufficiency of each European country in these items, is in an advanced stage of progress. The world situations in wheat, rice, soya beans, cotton and wool have been studied and reported and special estimates of future exports of numerous commodities have been made from time to time for use in the planning both of agricultural production and of lend-lease activities.

In the field of economic defense specific studies have been made of the economic vulnerability of various hostile powers. These studies required a comprehensive appraisal of production, stocks available, supplies and the means of acquiring them, as well as the possibility of using substitutes.

Other important studies concluded during the year dealt with trade barriers and commodity controls with particular respect to international commodity agreements. A partial list of studies completed during the year is given below:

1. Agriculture in the Netherlands Indies
2. Agriculture in British Malaya
3. Italian Agriculture Under Fascism and War
4. Agriculture in French West Africa
5. Manchurian Agriculture under Japanese Control
6. The Agriculture of Cuba





7. Agriculture's Role in Hemisphere Defense
8. Impact of War on the Japanese Cotton Textile Industry
9. Wartime Policies and Controls Affecting Agricultural Trade
10. The European Food Situation

In the field of foreign trade the increased demand for information has necessitated publication of a regular monthly trade supplement to Foreign Crops and Markets which gives particular attention to the effects of the war upon our agricultural trade. To facilitate comparison between commodities and with earlier periods, quantity indices of United States exports of agricultural products have for the first time been published and the corresponding index of exports revised and set up on a comparable basis.

An added task has been a weekly war report for the Secretary containing statistical tables and analyses of current developments in foreign trade in cotton and other important agricultural products. The Office has also been made the repository for confidential trade statistics, the publication of which was suspended as a defense measure. It has also been called upon to prepare special monthly export tabulations of commodities under export control for the Office of Agricultural Defense Relations.

In the search for information the Office has sent abroad several of its commodity specialists. One of these made a tour of competitive cotton-producing countries of Latin America with a view to furthering preparations for a world cotton agreement. Another completed a study of Brazil nut production and marketing in the Amazon valley. A third investigated the competitive apple situation in British Columbia preparatory to arrangement with the Canadian Government for the limitation of apple exports to the United States. Following earlier on-the-ground studies to obtain material, three bulletins have been prepared dealing with fruit production and trade in Argentina, Brazil and Chile.

#### Coordination and administration

Lend-lease: One of the most important developments in this field has to do with lend-lease operations. The Office of Foreign Agricultural Relations has been designated to handle negotiations with the Lend-Lease Administration, the British Food Mission and representatives of other foreign governments eligible to receive aid under the Lend-Lease Act. Regular meetings are held with representatives of foreign governments for the purpose of determining what requisitions for agricultural products will be submitted to the Department of Agriculture. The Director of the Office has been designated by the Secretary as liaison officer for the Department with the Administrator of the Lend-Lease Administration. The lend-lease program has increased from the time of the first shipment about the middle of April to autumn, when shipments of foodstuffs had reached a rate of about 250,000 tons of cargo per month.



Foreign trade control, economic defense: In addition to preparing numerous studies pertaining to export and import control and economic defense, the Office supplied the Department's representative on the Export Control Policy Committee and, more recently, has in cooperation with the Office of Agricultural Defense Relations assisted in establishing import priorities for fertilizers and other products required by American farmers. More recently the Office has undertaken numerous studies for the Board of Economic Warfare, and the Director of the Office has been appointed to serve as alternate for the Secretary of Agriculture on that Board.

Latin American cooperation: A very important aspect of defense activity is the furtherance of cooperation with our neighbors, both on the north and the south. The Office of Foreign Agricultural Relations has coordinated and directed the Department's program of encouraging the production of complementary products in Latin America, the most important of which is rubber. The primary task of the Office in this field has been to negotiate with the Department of State, the Export-Import Bank and the Office of the Coordinator of Inter-American Affairs with a view to expediting the activities of the Department's scientists and experts. It is also the task of the Office to coordinate the Department's activities under Public No. 63, 76th Congress, which authorizes the loan of technical assistants to the other American republics.

During the year the Department's scientists completed field investigations in fifteen Latin American countries for the purpose of determining the most suitable areas in which to produce rubber. The next task of this Office, therefore, is to encourage as rapidly as possible the commercial production of rubber through either private or governmental agencies, or both. Already the way has been paved by the signing of formal agreements with twelve of the fifteen countries for the establishment of experimental plantings.

The Department's complementary production program is not limited to rubber. One of the most effective means of encouraging the production of complementary products in Latin America has been through the use of loans arranged through the Export-Import Bank, which has \$500,000,000 for this purpose. In this connection the Office of Foreign Agricultural Relations has arranged for a number of surveys of Latin American countries to determine the feasibility of making such loans. Part of the personnel for these surveys has been supplied by this Office; the others have been obtained by the Office either from other Government agencies or from private organizations.

As a result of these surveys and the recommendations arising therefrom, the Export-Import Bank has approved loans to Cuba, Haiti, Paraguay and Ecuador totaling \$30,450,000.

A survey of Colombia has resulted in a substantial change in that government's agricultural program.





The Office of Foreign Agricultural Relations supplied the personnel for an investigation to determine the most suitable location for an Institute of Tropical Agriculture, funds for the establishment of which have been provided by the Coordinator of Inter-American Affairs.

The Office also arranged for the loan of agricultural experts to Brazil, Peru, Chile, Mexico, Ecuador and Bolivia to advise the governments of those countries in respect to their agricultural problems and has been considering similar requests from numerous other Latin American countries.

International commodity collaboration: In the field of international commodity collaboration, there was held under the auspices of the Office two meetings of the International Cotton Advisory Committee. At these meetings representatives of the Governments of India, Peru, Mexico, Egypt, Brazil, Turkey, U. S. S. R. and the British Exporting Colonies, as well as the United States, exchanged views in regard to the international cotton situation and considered the feasibility of an international cotton agreement.

The Office also provided a representative in negotiating the Inter-American Coffee Agreement. A representative of the Office is also on the Permanent Interdepartmental Committee established to give advice and recommendations to the United States Delegate on the Inter-American Coffee Board.

The Office played a leading part in the preliminary exchange of views between the governments of Argentina, Australia, Canada, the United Kingdom and the United States with regard to the desirability of renewing negotiations for an International Wheat Agreement. Such negotiations were begun in Washington in July 1941 and a draft agreement is now under consideration by representatives of the five countries.

The Office was concerned with agricultural surplus problems in neighboring countries arising out of the war. The shutting off of European markets for Canadian and Argentine fruits, for example, caused a diversion of their surpluses to the United States. This Office was instrumental in bringing about an understanding with the Canadian Government to limit its exports of apples to the United States to 650,000 boxes for the year, and with the Argentine Government to limit exports of pears to 300,000 boxes for the season ending April 1, 1941, both of which actions had a steadying influence on domestic markets. Similarly, the Office took part in discussions with the Canadian Government preceding the establishment of a quota on imports into the United States of Canadian wheat.

The Office also reorganized and directed the agricultural reporting work of the Foreign Service of the United States which, it is anticipated, will lead to a fuller coverage of world agricultural developments.



Informational activities

In addition to continued publication of its weekly Foreign Crops and Markets and its monthly Foreign Agriculture, the Office instituted a daily Latin American News Digest consisting of one mimeographed sheet. This Digest, intended for administrative use only, attempts to summarize the daily news items bearing specifically on the relations of the United States with other American republics. Circulation of the Digest is 11,000 copies daily.

In February 1941 approval was obtained for the publication of a new monthly printed periodical, Agriculture in the Americas. This publication is designed to popularize agricultural information relating specifically to the Western Hemisphere. It gives particular attention to the Department's programs encouraging the production of complementary products in Latin America. The monthly free circulation of this publication is 10,000 copies.



SUPPLEMENTAL FUNDS

Direct Allotments

There appears in the Department of State section of the Budget a schedule showing estimated obligations for fiscal years 1942 and 1943 under the heading "Cooperation with the American Republics" reflecting transfers in 1942 and proposed transfers in 1943 to the Office of Foreign Agricultural Relations for promoting in Latin America the production of complementary or non-competitive agricultural products. Below is a complete statement of supplemental funds:

| Projects   | Allotments,<br>1941 | Estimated<br>allotments,<br>1942 | Estimated<br>allotments,<br>1943 |
|--|---------------------|----------------------------------|----------------------------------|
| <u>Salaries and expenses, Agricultural Adjustment Administration:</u> For services in connection with agricultural adjustment programs .....   | \$31,800            | \$31,800                         | - -                              |
| <u>Exportation and Domestic Consumption of Agricultural Commodities:</u> For services required in the administration of section 32 of the Act of August 24, 1935..   | 35,700              | 35,000                           | \$66,800                         |
| <u>Rubber investigations, Bureau of Plant Industry, O.F.A.R.:</u> For coordinative, advisory and informational services in connection with development of rubber production in the Western Hemisphere...                               | (a) 60,000          | - -                              | - -                              |
| <u>Working Fund, Agriculture, Office for Emergency Management, War:</u> For expenses of agricultural specialists in connection with conducting agricultural surveys in Latin America .....   | (b) 10,000          | - -                              | - -                              |
| <u>Working Fund, Agriculture, Office for Emergency Management, War:</u> For expenses of traveling exhibits of Latin American products in the United States.  | (b) 10,000          | - -                              | - -                              |
| <u>Cooperation with American Republics, Transfer to Agriculture, 1942, O.F.A.R.:</u> For expenses of furnishing technical services to Latin American republics for the encouragement of the production in Central and South America of |                     |                                  |                                  |





| Projects (Continued)  | Allotments | Estimated          | Estimated          |
|---|------------|--------------------|--------------------|
|   | 1941       | allotments<br>1942 | allotments<br>1943 |
| complementary agricultural commodities needed in the economy of the United States   | - -        | \$50,000           | \$200,000          |
| <u>Working Fund, Agriculture, Office for Emergency Management, War:</u><br>For expenses of investigating sites offered by Latin American countries for a proposed Institute of Tropical Agriculture, and for expenses in connection with sending agricultural specialists to the Republic of Ecuador to work with officials of that Government in establishing a program looking toward increased production of complementary products..... | - -        | 53,000             | - -                |
| Total, Supplemental funds (Direct allotments).....  | \$147,500  | 169,800            | 266,800            |

(a) available until expended.

(b) available until June 30, 1942.



OFFICE FOR AGRICULTURAL DEFENSE RELATIONS

This Budget schedule covers the transfer of funds from the appropriation "Salaries and expenses, Office for Emergency Management" to the Secretary for financing the Office for Agricultural Defense Relations which was established in the Office of the Secretary of Agriculture on May 5, 1951, in accordance with instructions from the President.

The functions of the Office for Agricultural Defense Relations are to coordinate the relationships between the agricultural industry and the various defense agencies, to represent the Department in its relationships with the various defense agencies, and to coordinate the activities and needs of the agricultural industry in relation to its share in the total defense effort of the country.





# BUREAU OF ANIMAL INDUSTRY

## (a) GENERAL ADMINISTRATIVE EXPENSES

|  |                |
|--|----------------|
| Appropriation Act, 1942, plus \$1,800          |                |
| supplemental for within-grade promotions ..... | \$171,820      |
| Budget estimate, 1943 .....                    | <u>172,000</u> |
| Change from 1942:                              |                |
| Net reduction in working funds .....           | -2,020         |
| Additional for administrative promotions ..... | <u>+2,200</u>  |
| Net increase .....                             | <u>+ 180</u>   |

## PROJECT STATEMENT

| Projects  | 1941           | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|----------------|---------------------|---------------------|-------------------------|
| 1. General administration and<br>business service ..... | \$169,936      | \$170,020           | \$168,000           | -\$2,020 (1)            |
| 2. Net cost of within-grade promotions:                 | - -            | 1,800               | 4,000               | + 2,200                 |
| Unobligated balance .....                               | 84             | - -                 | - -                 | - -                     |
| Total .....   | <u>170,020</u> | <u>171,820</u>      | <u>172,000</u>      | <u>+ 180</u>            |

## DECREASE

(1) The reduction of \$2,020 for general administration and business service will be met by a decrease in personnel of one employee and a reduction in the purchase of equipment.

## WORK UNDER THIS APPROPRIATION

The general administrative work of the Bureau is conducted under this appropriation. The Bureau is primarily concerned with the protection and development of the livestock industry and animal food resources of the United States. It conducts scientific investigations of the causes, prevention, and treatment of livestock diseases, some of which are transmissible to man; investigates the prevalence of livestock diseases and aids in their control or eradication, often directing extensive field activities; carries on investigations and experiments in the breeding, feeding and management of livestock; and administers the Federal Meat Inspection Act, the animal quarantine acts, the 28-Hour Law, the diseased-animal transportation acts, and the Virus-Serum-Toxin Act. For facility and economy of operation, administrative functions common to the entire Bureau, which is composed of 11 operating divisions, are grouped directly in the office of the Chief. These include primarily the determination of general policies and the supervision of all activities such as publications, preparation of press releases, exhibits, motion pictures, and radio programs on the results of Bureau work; the preparation of estimates of expenditure; the selection of employees, and other phases of personnel management; the procurement of supplies and equipment and maintenance of property records; the various phases of fiscal management involved in the expenditure of funds; the maintenance of a library for the use of scientific and technical workers; and the receipt, classification and distribution of incoming mail and dispatch of outgoing mail.



(b) ANIMAL HUSBANDRY

|  |                |
|--|----------------|
| Appropriation Act, 1942, plus \$5,228          |                |
| supplemental for within-grade promotions ..... | \$829,608      |
| Budget estimate, 1943 .....                    | <u>811,000</u> |
| Change from 1942:                              |                |
| Net reduction in working funds .....           | -24,380        |
| Additional for administrative promotions ..... | + 5,772        |
| Net decrease .....                             | <u>-18,608</u> |

PROJECT STATEMENT

| Projects   | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease       |
|--|-----------|---------------------|---------------------|-------------------------------|
| 1. Swine husbandry investigations ...                                | \$130,356 | \$132,622           | \$130,622           | - \$2,000 (1)                 |
| 2. Sheep and goat husbandry investigations .....                     | 145,608   | 145,386             | 140,986             | - 4,400 (2)                   |
| 3. Horse and mule husbandry investigations .....                     | 41,064    | 41,934              | 38,394              | - 3,540 (3)                   |
| 4. Beef cattle husbandry investigations .....                        | 168,680   | 188,361             | 178,021             | -10,340 (4)                   |
| 5. Dual-purpose cattle husbandry investigations .....                | 70,963    | 66,259              | 62,159              | - 4,100 (5)                   |
| 6. Poultry husbandry investigations .                                | 240,192   | 243,957             | 243,957             | (+16,920 (6)<br>(-16,920 (7)) |
| 7. Certification of pedigrees of imported registered livestock ..... | 5,932     | 5,861               | 5,861               | - -                           |
| 8. Net cost of within-grade promotions .....                         | - -       | 5,228               | 11,000              | + 5,772                       |
| Unobligated balance .....  | 21,585    | - -                 | - -                 | - -                           |
| Total .....  | 824,380   | 829,608             | 811,000             | -18,608                       |

INCREASES OR DECREASES

The decrease in working funds of \$24,380 in this item for 1943 consists of:

(1) A decrease of \$2,000, due to discontinuing cooperative studies on the physiology of reproduction of swine at Columbia, Missouri.

(2) A decrease of \$4,400, due to discontinuing sheep grazing studies at the experiment station at Miles City, Montana.

(3) A decrease of \$3,540, due to discontinuing a part of the cooperative studies on the physiology of reproduction of horses at Columbia, Missouri.

(4) A decrease of \$10,340 in "Beef cattle husbandry investigations" including:

(a) A decrease of \$4,500, due to discontinuing the experiment station at Ardmore, South Dakota, where beef cattle management investigations are carried on.

(b) A decrease of \$5,840, due to discontinuing cooperative beef cattle feeding studies at Summerville, South Carolina and Lewisburg, West Virginia.



(5) A decrease of \$4,100, due to discontinuing dual-purpose cattle breeding investigations at the experiment station at Middlebury, Vermont.

(6) An increase of \$16,920 for more adequate supervision of the National Poultry Improvement Plan:

Objective: To meet the need for more effective administration arising from increased participation in the National Poultry Improvement Plan. This program is conducted in cooperation with official State agencies in order (a) to improve the production efficiency and breeding qualities of poultry, (b) to reduce losses of chicks from pullorum disease, and (c) to identify, with uniform terminology, breeding stock, hatching eggs, and chicks produced in conformity with the provisions of the plan.

The problem and its significance: Since the inauguration of the National Poultry Improvement Plan in the fiscal year 1936, the appropriation for administration has been increased but once--from \$40,000 to \$45,000 in the fiscal year 1940. Meanwhile, participation in the program has grown steadily, as shown by the following table comparing the fiscal year 1936 with the fiscal years 1940 and 1941:

Data Concerning the National Poultry Improvement Plan

| Items  | Fiscal year |            |             |
|--|-------------|------------|-------------|
|  | 1936        | 1940       | 1941        |
| States .....                                     | 34          | 44         | 44          |
| Hatcheries .....                                 | 1,017       | 2,192      | 2,465       |
| Egg capacity of hatcheries .....                 | 38,066,000  | 90,578,718 | 117,915,752 |
| Breeding flocks .....                            | 23,813      | 50,559     | 59,136      |
| Breeding birds .....                             | 3,522,409   | 10,714,238 | 12,010,766  |
| Breeding birds tested for pullorum disease ..... | 2,053,159   | 8,990,869  | 10,541,695  |
| U. S. R. O. P. <u>1</u> / flock owners .....     | <u>2</u> /  | 335        | 335         |
| U. S. R. O. P. flocks .....                      | 190         | 429        | 445         |
| Birds entered in trap-nest flocks ..             | 66,547      | 144,447    | 154,969     |
| U. S. R. O. P. breeding pens .....               | <u>2</u> /  | 2,429      | 2,749       |
| Females in U. S. R. O. P. pens .....             | 8,207       | 32,949     | 38,957      |

1/ U. S. Record of Performance

2/ Complete information not available

With this increase in participation in the plan and the gradual raising of standards from time to time, the present appropriation is inadequate for effective administration and is limiting the progress of the program. The plan has been voluntarily adopted as the standard program for organized breeding and pullorum disease control by breeders, hatcherymen, and hatching-egg flock owners in forty-four States. Approximately \$800,000 was contributed by the industry and official State agencies in the operation of this program in 1941. It is estimated that in 1941 more than 300,000,000 baby chicks were produced by those participating in the plan, which number represents about forty percent of the total hatchery production of chicks in the United States.







The importance of this project is amplified by the present war-time needs for additional poultry meat and egg production. Under conditions which stimulate increased production, it is likewise important that such increase shall be established on a sound and efficient basis (a) to meet the present need most effectively, (b) to secure a greater net return from feed consumed in the production of poultry products above maintenance feed requirements, and (c) to insure against repercussions when the pressure for increased production is relaxed.

Plan of Work: In order to obtain satisfactory compliance and accomplish the purposes of the National Poultry Improvement Plan, the following procedures will be emphasized:

1. Acquaint representatives of official State agencies and participating industry members with the objectives and the provisions of the plan.
2. Obtain correct usage of the terminology of the plan with respect to describing properly those products produced in conformity with its provisions.
3. Advise with and assist cooperating industry members in establishing sound procedures in breeding and pullorum-disease control.
4. Obtain the cooperation of all participants in meeting at least the minimum requirements of the plan in order that the products produced and sold under official terminology will be of uniformly high quality.

The procedures outlined above have been found effective for bringing about compliance with the provisions of the plan. Furthermore, these procedures are conducive to greater efficiency in selecting and testing chickens which reflect favorably and immediately on the quality of products produced by those participating in the plan.

(7) A decrease of \$16,920 in "Poultry husbandry investigations" including:

(a) A decrease of \$14,500, due to discontinuing the experiment station at Glendale, Arizona, where poultry nutrition investigations are carried on.

(b) A decrease of \$2,420, due to a reduction in poultry breeding work at the experiment station at Brooksville, Florida.

#### WORK UNDER THIS APPROPRIATION

Objective: Through research, to develop means of improving the productivity, both in quantity and quality, of our domestic farm animals and poultry. In addition to research, the work in connection with the administration of the provisions of paragraph 1606 of the Tariff Act of 1930 in regard to the certification of purebred animals imported by citizens of the United States for breeding purposes is carried on under this appropriation.

The problem and its significance: Livestock and poultry products vary greatly in quantity and quality per animal unit. Many losses occur which could be avoided by improved breeding, feeding, and management practices. Although the average productivity of America's herds and flocks has increased many fold in the past half century, strains and methods of feeding which outdo the



present average in some cases by one and two hundred percent have been developed. The development of these strains and of these new principles repays many times over the research appropriations expended, but such research is too time-consuming, too costly, and requires far too much pooling of trained talent to be done by individual farmers and poultrymen.

General plan: (1) To test the merits of different systems of breeding; (2) to develop strains possessing inherent characters for high level of performance; (3) to study the various management factors that tend to keep livestock healthy and reduce losses; (4) to determine the fundamental nutritive requirements of livestock; (5) to determine the best methods of using feeds to obtain maximum results in growth and reproduction; and (6) to study the effects of the foregoing and of processing upon the quality of meat, eggs, animal fibers and other productiveness of livestock.

During the fiscal year 1941, approximately \$48,000 from the sale of livestock and livestock products which had served their purpose for investigational work, was returned to the miscellaneous receipts fund of the Treasury.

Examples of progress and current program: The following examples of recent accomplishments under this appropriation are cited by classes of livestock to show progress on one or more important aspects of the broader problems being considered in the research program.

Swine Investigations: Studies on the development of new and improved strains of swine by application of known genetic principles are showing favorable progress. Crossing of Danish-Landrace swine with American breeds, followed by backcrossing and inbreeding, is resulting in the combination of better qualities possessed by the parent breeds and in improvement of growth rates and efficiency in feed utilization. For instance, 12 lots of pigs from the cross-bred foundations sows and sired by Danish-Landrace boars had an average daily gain of 1.43 pounds and required 377 pounds of feed per 100 pounds of gain in comparison with 1.21 pounds daily gain and 401 pounds of feed per 100 pounds gain for 14 purebred Landrace litters by the same boars.

The summary of four seasons' results in the feeding of soybean meal and peanut meal as protein supplements of plant origin to pigs during the suckling period showed that the feeding of these supplements did not materially improve the quality of the ration as measured by feedlot performance. In the first of a series of tests to determine the relative feeding value of ground soybean hay at different percentage levels of the winter ration, the hogs receiving 5 and 10 percent levels of the hay gained fastest and made the most economical use of the feed per unit of gain.

Studies on Vitamin B<sub>1</sub> requirement of young swine showed that pigs on a ration of medium feed content required between 106 and 120 micrograms of B<sub>1</sub> per 100 grams of carbohydrates and protein consumed. Preliminary tests indicated also that the fat content of the ration has a marked effect on the amount of B<sub>1</sub> required, being much lower when the rations with the higher fat content are fed.





Tests to determine the most economical combination of corn and supplementary protein mixtures have shown that when a trinity mixture (2 parts tankage, 1 part linseed meal, and 1 part alfalfa meal) is used in the dry lot from weights of 35 to 225 pounds with change in protein level every six weeks, the most economical feedlot performance was obtained with the groups receiving 30 percent, 23 percent and 17 percent of the trinity mixture for three consecutive 6 weeks' feed periods.

It has been found at the Beltsville station that the use of the electric pig hover results in saving approximately 5 percent more pigs to 3 weeks of age. Furthermore, the pigs having access to the electric hover during the first week or two of life average 1.4 pounds heavier at weaning at 8 weeks of age than those not having access to the hover.

In the preservation of pork, an important finding is that pork precooked to an internal temperature of 158°F. can be held at a freezer storage temperature at 18°F. for 24 weeks or more with more satisfactory results in regard to quality than uncooked pork. The possibility of using the relatively high and most economical freezer temperatures for storage of pork for emergency use is suggested by these results.

Sheep, goat, and animal fiber investigations: The sheep breeding program for several years has consisted of breeding within related lines using the best possible measures of wool quality and mutton conformation. Two strains, the Columbia and Targhee, started from a hybrid foundation of Lincolns and Rambouillets in the first case and Corriedale X Columbia crossbreds and Rambouillets in the other, have made such progress that they are now in great demand by the sheepmen of the West. During the year further steps were taken to improve these strains and make more of them available for use in the area. Another strain, known as the Southdale which is being developed at the Middlebury, Vermont, field station from a Southdown and Corriedale cross, has made considerable progress and will furnish to the sheepmen in that area a combination of meat qualities of the Southdown with some of the wool qualities of the Corriedale. Other strains, particularly in the Rambouillet breed, are being developed through the process of inbreeding and crossing of lines. These strains are making more progress than expected, due primarily to the fact that the foundation stock had been purified to a considerable extent by previous breeding research.

This year results have been obtained at Dubois, Idaho, through cooperation with the Forest Service, showing that the use of rotation management during the spring grazing season on the basis of slightly more than 1 sheep-month per surface acre on good range, of which one-half sheep-month is secured in the spring and one-half is retained for fall use, will permit the range to recover from serious droughts similar to that which occurred in 1934. This finding is of considerable importance in the long-time program where the condition of the range must be maintained in spite of variations in climatic conditions.

In the grazing studies conducted at Miles City, Montana, in cooperation with the Forest Service, it has been found that forage improvement on the range has been more favorable where sheep have grazed than where other livestock have been grazing on similar lands. These results indicate the economy





of a diversified setup which includes some sheep with other livestock.

In studies on goat's milk and its production, indications have been found that the feeding of grain to goats is essential to maximum yield and consistency in milk production, and is less important to the health of the animals provided adequate hay and pasture are supplied. Studies on goat's milk in cooperation with the Bureau of Dairy Industry show that some of the constituents and properties of goat's milk are altered slightly by pasteurization.

In the animal fiber investigations a new device has been perfected for obtaining wool samples of uniform size to determine the density of wool fibers in fleeces, the use of which increases the speed and accuracy of obtaining such samples, and makes possible more definite progress in the application of breeding methods to the improvement of wool characters in sheep.

A new rapid method has been developed for estimating wool fineness and variability which reduces by one-half the time required for determining fineness and variability on experimental flocks. Film strips with the wool standards have been made available to agricultural experiment stations of the Western States where they are being employed in speeding up their research programs on the breeding improvement of sheep.

Horse and mule investigations: One of the most important problems in horse breeding is concerned with the low colt crop. Ordinarily not over 50 percent of the mares which are bred produce colts. Observations already made show that much of this difficulty is concerned with problems on the reproductive processes. In order to determine the nature of the trouble, research has been conducted on the changes occurring in the reproductive tract during the estrual cycle and on the tissues and fluids concerned with fertilization and the growth of the fetus. By examination of mares, it has been determined that there is great variability in their estrual cycles and that in order to overcome difficulties in breeding, it is necessary to make careful observations and probably resort to artificial insemination.

Studies on artificial insemination have resulted in the development of apparatus for the collection of semen, for its separation into component parts, for storage and transport, and for its use in breeding mares. It has been possible to make frequent collections from stallions without the use of mares and to separate during the collection process in such a way that the portion containing the highest concentration of sperm is removed. By using the results of research on physiology of reproduction, including artificial insemination, it has been possible to increase the colt crop at the station at Miles City, Montana, approximately 30 percent in 1 year.

Beef and dual-purpose cattle investigations: The experiment at the U. S. Range Livestock Experiment Station, Miles City, Montana, with 4 herds of Hereford cattle closed to outside breeding is progressing favorably. Selection for fertility, conformation, and efficiency of feed utilization is being practiced. Progress to date shows that significant improvement in breeding qualities has been made as indicated by the ability of bulls from these experimental herds to improve other herds. Considerable further progress is to be expected from crosses between these herds when they have reached the proper degree of genetic homogeneity.



Crossbreeding of Brahman and Aberdeen-Angus cattle followed by close breeding and selection for the characteristics of economic importance has proved the value of this method of improving adaptability of beef cattle to conditions of high temperature and humidity in the Gulf Coast area. Our experiments show that a hybrid composed of about  $3/8$  Brahman and  $5/8$  Angus is able to withstand climatic conditions and produce a good beef carcass. Several generations of close breeding and selection are necessary, however, to bring about a reasonable degree of breeding stability.

A deficiency of carotene, the main source of vitamin A in cattle rations, is one of the important causes of losses under practical conditions through impaired reproduction in cows, poor growth in young stock and deleterious effects on the meat. Many cattle in the important beef-producing areas, both on the range and on farms, are subjected to shortage of carotene for varying lengths of time due to drought, over-grazing, or to the inadvertent use of carotene-deficient feeds for a considerable period of the year.

This is especially true in the South where large amounts of cottonseed meal and hulls are fed to cattle and in the Midwest, West and Northwest where many of the common cattle feeds such as cereal grains, beet byproducts, cereal straw, corn stover, prairie hay or old stocks of legume hay, and other feeds deficient in carotene are used to feed cattle. In the cotton producing States there has been a tendency to make a maximum use of cottonseed products in cattle rations, due in many cases to the availability of cottonseed meal and hulls and the lack of other concentrates and harvested feeds. When meal and hulls are fed exclusively for long feeding periods cattle develop a staggering gait, become blind, have convulsions, and other abnormalities. Formerly these conditions have been attributed to cottonseed meal or gossypol poisoning, but in recent years research has shown that most of the disorders accompanying heavy feeding of cottonseed products are due to a lack of certain nutrients, principally carotene, causing a vitamin A deficiency. By supplementing heavy cottonseed meal and hull rations with feeds rich in carotene, such as green leafy alfalfa hay or meal, deficiencies associated with the lack of vitamin A have been prevented. Further studies are now in progress.

The results of the past year show that the feeding of a phosphorous supplement to cattle grazing on a phosphorous-deficient range increases the percentage of calf crop and promotes the growth of calves. Seventy-two percent of the supplemental cows have produced calves for two consecutive years as compared to only 21 percent for the cows getting no phosphorous supplement. Calves from the supplement-fed cows weighed 78 pounds more at weaning time and 100 pounds more at one year of age than the calves from the control cows. The formation of urinary calculi in steers fed milo grain, cottonseed meal and sorgo silage appears to be lessened by the addition of calcium to the ration. The feeding of a ration having a high calcium ratio appears to control calculi formation to a certain extent.

It has been found in experiments comparing the finishing of cattle on grass with cattle fed grain that for the same degree of finish the grass-fed cattle are as satisfactory as the grain-fed. Carcass weight in relation to live weight, carcass grade in proportion to edible meat and its palatability failed to show any differences attributable to the rations. The yellower fat





of the grass-fed cattle contained more carotene, the first source of vitamin A, and the beef ripened fully as well as the grain-fed cattle.

Poultry investigations: Poultry investigations are being conducted with a view to making scientific discoveries which, when applied by farmers and poultrymen throughout the country, will result in a more efficient production of high quality products on American farms.

By progeny testing the average yearly weight of eggs laid by White Leghorns at Beltsville, Maryland, has been increased from 23.2 ounces per dozen to 25.3 ounces per dozen in 5 years' time. In addition to this improvement in average weight of eggs, each year for 5 successive years eggs of standard weight (24 ounces per dozen) were laid earlier in the laying season. With a constantly increasing proportion of eggs being sold on a graded basis, the application of this method of improving egg weight will result in a higher average price for market eggs.

Fresh-laid eggs frequently contain blood spots or meat spots in the yolks or albumen which cause losses to producers and marketing agencies. It has been shown that the incidence of blood spots is not affected by frightening of the birds, high production, or the laying of large eggs. Furthermore, the occurrence of blood spots is neither seasonal nor affected by the age of the birds. Certain breeds and certain individuals within the breed have been found to produce more blood spots than others, indicating that the tendency to produce blood spots in eggs is an inherited characteristic.

Crossbreeding has been shown to be of especial value in the production of broilers. Research at Beltsville, Maryland, has contributed materially to the adoption of this method for improving the rate of growth and quality of broilers produced in the commercial broiler areas, in the Del-Mar-Va and other sections of the United States.

A small-type turkey is being developed at the Beltsville Research Center to meet the needs of small families. This new turkey is white in color, small in weight, matures rapidly, is compact and well-fleshed, efficient in feed utilization, and high in reproductive ability. Young hens of the new strain averaged 7 to 8 pounds dressed, at market age in 1940, and the young toms 13 to 14 pounds. During the spring of 1941, 5,500 hatching eggs from these small-type turkeys were sold to 22 State colleges of agriculture and agricultural experiment stations, and the University of Hawaii.

Experiments at the Beltsville Research Center on feather picking, toe picking, and cannibalism have shown that losses from these causes can be greatly reduced through the addition of salt to the ration. This treatment consists of adding 2 percent of salt to the all-mash diet and 4 percent to mashes with which grain is to be fed.

Studies of White Leghorn chicks indicated that when the cereal portion of their diet was restricted to a single grain the most rapid gains were obtained with oats, barley, wheat, and corn in the order given. However, there were no differences in the quantities of feed required to produce a





gain in live weight. In general, the feathering of the chicks that received corn was poorest of all. The addition of oat hulls, ground hulls, or whole oats to the corn and wheat diets improved both the rate of growth and the quality of the feathering.

In the studies of the composition of poultry it was found that neither female nor male turkeys put on very much fat before the 20th week of age. However, considerable quantities of fat are put on by the females between the 20th and 24th weeks and by the males between the 24th and 28th weeks. At the age of 32 weeks the edible portions of the females contained 28.4 percent of fat and those of the males 21.0 percent. In those cases where most of the fat is discarded and is not used as human food such fat turkeys are not desirable and the males are a better buy than the females. Accordingly, unless especially fat turkeys are desired, they should be marketed by the time they are 28 weeks old.

The efficiency of farm poultry production can be greatly increased through the adoption of sound methods of breeding and pullorum disease control. A study of the production records of 29,000 pullets trapnested on U. S. Record of Performance farms during the 1939-40 trapnest record year shows that the hen-housed average production was 170 eggs. During the previous trapnest record year the hen-housed average production of 10,356 pedigreed daughters of U. S. Register of Merit sires was 203 eggs and the average production of 7,631 daughters of U. S. R. O. M. dams was 213 eggs.

From 1920-35, 24 States started official pullorum disease control programs and since the National plan was placed into operation July 1, 1935, 44 States have official State agencies cooperating with the Department. The number of birds officially tested during the first 15 years of such work was less than the number officially tested during the 1940-41 season. Twice as many birds were officially tested during the first 5 years of the plan as were tested during the first 15 years that official pullorum-control programs were conducted in the United States. The percentage of infected chickens found in breeding flocks has steadily decreased since 1931, and on the average only 3.1 percent of the birds tested during 1940 were found to be reactors. The adoption of the pullorum control phase of the plan has resulted in materially decreasing chick losses. A survey conducted in one State cooperating in the national plan showed that the chick losses from all causes were 3.47 percent less in chicks produced in U. S. Pullorum-Tested hatcheries than in chicks produced by other hatcheries.

Certification of pedigrees of imported registered livestock: During the calendar year 1940, a total of 17,641 purebred animals were certified in this project, showing an increase of 2,429 certifications over the previous year, when 15,212 animals were approved for free entry. The animals certified included 353 horses, 13,044 cattle, 3,417 sheep, 5 goats, 41 swine, 778 dogs and 3 cats.

Two additional books of record were recognized in 1940, one in Norway for Westland horses and one in Australia for Corriedale sheep. At the end of the year, the Department recognized 113 registries.



(c) DISEASES OF ANIMALS

|  |                |
|--|----------------|
| Appropriation Act, 1942, plus \$2,998          |                |
| supplemental for within-grade promotions ..... | \$709,998      |
| Second Supplemental National Defense           |                |
| Appropriation Act, 1942 for investi-           |                |
| gations of swine erysipelas .....              | <u>16,500</u>  |
| Total Available, 1942 .....                    | <u>726,498</u> |
| Budget estimate, 1943 .....                    | <u>715,000</u> |
| Change from 1942:                              |                |
| Net reduction in working funds .....           | -16,500        |
| Additional for administrative promotions ..... | + 5,002        |
| Net decrease .....                             | <u>-11,498</u> |

PROJECT STATEMENT

| Projects  | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|----------|---------------------|---------------------|-------------------------|
| 1. Investigations of nonparasitic diseases of livestock:  |          |                     |                     |                         |
| (a) Investigations of equine encephalomyelitis and forage poisoning .....   | \$18,836 | \$19,090            | \$19,090            | - -                     |
| (b) Investigations of mastitis of cattle .....  | 23,590   | 23,000              | 23,000              | - -                     |
| (c) Investigations of anaplasmosis of cattle .....  | 27,890   | 28,755              | 28,755              | - -                     |
| (d) Investigations of rabies .....  | 4,587    | 5,315               | 5,315               | - -                     |
| (e) Investigations of swine erysipelas .....  | 8,906    | 23,420              | 6,920               | -\$16,500(1)            |
| (f) Investigations of miscellaneous diseases, including glanders, black-leg, paratyphoid infection of swine, footrot, alkali disease, and other miscellaneous diseases and pathological conditions of animals ..... | 29,018   | 23,518              | 23,518              | - -                     |
| (g) Investigations of brucellosis of cattle (Bang's disease or contagious abortion) .....   | 194,182  | 215,182             | 215,182             | - -                     |
| (h) Investigations of stock poisoning by plants .....   | 19,829   | 20,650              | 20,650              | - -                     |
| (i) Diagnosis and general investigations of miscellaneous poultry diseases including laryngotracheitis, tuberculosis, pullorum disease, fowl pox .....  | 18,137   | 19,390              | 19,390              | - -                     |
| (j) Investigations of equine infectious anemia (swamp fever) .....  | 14,854   | 15,000              | 15,000              | - -                     |
| (k) Investigation of animal tuberculosis .....  | 19,588   | 22,500              | 22,500              | - -                     |
| (l) Determination of various types of tubercle bacilli in the diagnoses of the disease .....  | 2,674    | 3,000               | 3,000               | - -                     |



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PROJECT STATEMENT - Continued

| Projects  | 1941    | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|---------|---------------------|---------------------|-------------------------|
| (m) Investigations of paratuberculosis (Johne's disease) of cattle ...  | \$2,952 | \$3,000             | \$3,000             | - -                     |
| (n) Investigation of methods of producing immunization against hog cholera.                                     | 18,142  | 20,680              | 20,680              | - -                     |
| (o) Investigations of periodic ophthalmia of equines .....  | 9,382   | 10,000              | 10,000              | - -                     |
| (p) Investigations of nutritional deficiencies of cattle .....  | 7,434   | 7,000               | 7,000               | - -                     |
| (q) Investigations of brucellosis of swine .....  | - -     | 50,000              | 50,000              | - -                     |
| (r) Investigations of the fowl leukosis complex (range paralysis, gray eye, big liver disease, etc.) .....      | 10,454  | 10,500              | 10,500              | - -                     |
| (s) Biochemistry of nutritional factors in necrotic enteritis .....   | - -     | 7,500               | 7,500               | - -                     |
| Total, Investigations of nonparasitic diseases of livestock .....   | 430,455 | 527,500             | 511,000             | -\$16,500               |
| 2. Investigations of parasitic diseases of animals:   |         |                     |                     |                         |
| (a) Index catalog of medical and veterinary parasitology and maintenance of parasite collection .....           | 8,611   | 8,500               | 8,500               | - -                     |
| (b) Investigations of poultry parasites .....   | 20,164  | 20,300              | 20,300              | - -                     |
| (c) Investigations of swine parasites   | 24,014  | 22,800              | 22,800              | - -                     |
| (d) Investigations of parasites causing and transmitting anaplasmosis in cattle .....                           | 11,602  | 11,300              | 11,300              | - -                     |
| (e) Investigations of ox warbles in cattle and of related arthropod parasites .....                             | 29,738  | 30,000              | 30,000              | - -                     |
| (f) Investigations of liver flukes in ruminants .....   | 15,318  | 15,900              | 15,900              | - -                     |
| (g) Investigations of internal parasites of ruminants .....   | 24,410  | 24,300              | 24,300              | - -                     |
| (h) Investigations of horse parasites   | 10,969  | 11,300              | 11,300              | - -                     |
| (i) Investigations of miscellaneous parasites, including parasites of dogs, cats, wild animals, etc. ....       | 15,817  | 16,300              | 16,300              | - -                     |
| (j) Investigations for the development of anthelmintics and insecticides for the destruction of parasites ..... | 15,114  | 15,300              | 15,300              | - -                     |
| (k) Investigations of trichinosis in swine .....  | 9,009   | 10,000              | 10,000              | - -                     |





PROJECT STATEMENT - Continued

| Projects   | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|----------|---------------------|---------------------|-------------------------|
| (1) Investigations of bovine trichomoniasis .....  | \$3,941  | \$10,000            | \$10,000            | - -                     |
| Total, Investigations of parasitic diseases of animals .....                                 | 188,707  | 196,000             | 196,000             | - -                     |
| 3. Net cost of within-grade promotions .....   | - -      | 2,998               | 8,000               | + 5,002                 |
| Total obligations .....  | 619,162  | 726,498             | 715,000             | -\$11,498               |
| Transfer from "Eradicating tuberculosis and Bang's disease, Bureau of Animal Industry" ..... | -195,000 | - -                 | - -                 | - -                     |
| Unobligated balance .....  | 37,838   | - -                 | - -                 | - -                     |
| Total .....  | 462,000  | 726,498             | 715,000             | - 11,498                |

DECREASE

(1) The decrease in working funds of \$16,500 in this item for 1943 is due to a decrease in the project "Investigations of nonparasitic diseases of livestock." The Second Supplemental National Defense Appropriation Act, 1942, appropriated \$16,500 for work on swine erysipelas in addition to regular funds for this work in the amount of \$6,920. It is expected that by July 1, 1942, the Bureau will be able to shift emphasis on present work projects sufficiently to make available the additional amounts necessary so that there may be no diminution in the work in 1943.

CHANGE IN LANGUAGE

It is recommended that the proviso for research in the disease of contagious abortion of animals be reduced from \$323,182 to \$265,182.

In the Agricultural Appropriation Act for 1942, funds in the amount of \$195,000 formerly provided for experimentation in diseases of livestock under "Eradicating tuberculosis and Bang's disease" were transferred to "Diseases of Animals," together with an additional \$50,000 for investigations of brucellosis of swine. In the hearings before the House Committee the entire amount of \$195,000 plus the new funds for swine brucellosis in the amount of \$50,000 was inadvertently included under the proviso for contagious abortion, whereas only \$137,000 of the \$195,000 plus the new funds for swine brucellosis should have been transferred. The balance of \$58,000 should have been transferred to the main item for investigations of miscellaneous diseases of animals. The diseases investigated under the funds for experimentation in diseases of livestock are enumerated on page 323 of the House Hearings on the 1942 Bill.



## WORK UNDER THIS APPROPRIATION

Objective: To obtain information leading to measures for the control of the infectious and non-infectious diseases of domestic animals, including poultry, which are of particular importance at the present time; to obtain similar information on various plants suspected of being poisonous to livestock, in order to reduce losses from these sources; and to develop practical methods of coping with the numerous parasites that produce stunting, unthriftiness, and deaths in livestock and poultry.

The problem and its significance: The country's livestock and poultry are subjected to attack by many infective agents classified into three general groups, bacteria, fungi, and filtrable viruses. Losses are also caused by mismanagement and injurious agents such as specific poisons and certain plants. Infection is acquired through direct or indirect contact of healthy with diseased animals or their discharges through inhalation of contaminated air, ingestion of contaminated feed and water, insect and similar vectors, and accidental or surgical wounds. In certain diseases the infection spreads rapidly so that the whole herd becomes affected within a few days; other infections spread slowly and insidiously. Some diseases lend themselves to control to a greater or less degree by vaccination procedures, while other affections do not readily yield to such measures, and specific treatment, prevention, or eradication are indicated. In brief, the problem of disease control involves (1) diagnosis, (2) prevention by sanitary measures, or (3) vaccination and eradication. Some of the diseases occasion exceedingly heavy losses through high mortality and others are disabling and greatly reduce production or lower ability to perform work. The monetary loss resulting from condemnation of whole carcasses or parts of diseased animals slaughtered under Federal or other official meat inspection regulations is conservatively estimated to amount to many millions of dollars.

Livestock and poultry are affected by external and internal parasites that are acquired through (1) the contamination of pastures, dry feed, and water with the infective stages; (2) through swallowing of insects and other low forms of life in which the infective stages normally live; (3) through insects that sting or bite the skin and thereby introduce parasitic infection; and (4) through direct contact of healthy animals with those that are parasitized. Once introduced into a herd or flock parasites multiply at enormous rates and produce stunting, unthriftiness, and death losses. It has been the common experience of livestock producers that farm animals cannot be raised successfully without resorting to periodic drenching or other treatment with medicinal preparations and making provision of some sort for rotation or other methods of controlling stomach and intestinal threadworms, tapeworms, lungworms, nodular worms, liver flukes, coccidia and other minute protozoan parasites. Experience has shown that enormous quantities of feed are wasted annually in unsuccessful attempts to fatten parasitized stock and poultry. A considerable part of the condemnation of carcasses and parts under meat inspection procedure is due to parasitic invasion, and among the most serious injuries to hides are those inflicted by various external parasites.





General plan: Investigations are made into methods of diagnosis, cause, mode of transmission, and methods of prevention, treatment, and control of the more important infectious and non-infectious diseases of livestock including poultry. These investigations embrace field and laboratory activities. Studies of the diseases as they exist in the field are made, and the bacteriological, serological, pathological, immunological, and animal inoculation studies are conducted in the laboratory. The investigations of stock-poisoning plants include field observations to determine the relationship between poisoning and conditions under which it occurs; the collection and feeding to different animals of the suspected plants; the chemical investigation of these plants to isolate and determine the chemical nature of the toxic substances; and attempts to find practical means either to prevent poisoning or counteract the effects of the toxic substances.

To develop a practical and scientific basis for eradicating or controlling parasites, studies are conducted on the distribution of these pests in the major agricultural regions of the United States, these investigations taking into consideration climate, soil types, pastures, and topography; methods are developed for accurate diagnoses, based on the study of the morphology of parasites and of their eggs and larvae; the infective stages are investigated from the standpoint of their ecology, with the view to developing methods for their destruction; the mode of transmission is determined by experiments in the laboratory and observations in the field; the injuries produced and symptoms exhibited by experimentally-infected animals are noted in order to develop sound methods for field diagnosis; the immunological responses, if any, are investigated as aids in control; weak links at which the vicious cycles of parasites may be broken are explored; intermediate hosts are investigated and methods are devised for their eradication or control; field tests to develop promising control measures are conducted on a small scale under conditions that enable the investigators to determine the factors that might be involved; and, finally, the most promising control measures are tested in the field in cooperation with farmers and stockmen, and control measures are adapted to meet varying conditions existing in different parts of the country.

To meet the ever-pressing need for affording infected animals prompt relief from the drain of parasitic infestations and saving the lives of young animals that have but little resistance to cope with mass attacks by parasites, experiments are conducted with drugs and chemicals to determine effective and inexpensive methods of destroying external parasites on, and removing internal parasites from livestock and poultry. Investigations are conducted also to develop practical methods of destroying the infective stages of parasites in the manure, which is the most fertile source of parasitic infestation on the farm and range.

Examples of progress and current programs: The following examples of recent accomplishments and aspects of the broader problems involved are cited by work projects.

1. Investigations of Nonparasitic Diseases of Livestock:





(a) Equine Encephalomyelitis and forage poisoning investigations:

Encephalomyelitis (inflammation of the central nervous system) exists in all parts of the United States and occurs in several different types, most important of which are those caused by infective agents (eastern and western encephalomyelitis virus and possible human St. Louis virus). Other types are caused by toxic agents. The work consists of laboratory investigations of various specimens of insects, ticks, brains from wild and domestic birds and mammals for the presence of virus and its type; histopathological examination of the brain specimens; experimental studies on improved types of vaccine; and the immunological relationship of the equine and human viruses. An experiment in which normal horses and horses immune to eastern and western equine encephalomyelitis virus are being exposed to human St. Louis virus is now under way to determine the last mentioned point.

(b) Mastitis investigations: Mastitis, or inflammation of the udder, is the cause of great loss to the dairy industry. The object of these investigations is to develop methods of sanitation and hygiene for controlling the disease, to improve methods of diagnosis now imperfect, to search for an effective method of immunizing against the malady, and to study the pathology of the disease and modes of transmission. With the recent development of additional therapeutic agents for the treatment of the disease, it has become necessary to expand investigations in this field. The value of a combination of sanitary and therapeutic measures in controlling and eradicating the disease in infected herds is being studied. Investigations are being made of infectious agents not previously encountered in mastitis.

(c) Anaplasmosis investigations: Anaplasmosis is widely distributed in the United States, having been definitely diagnosed in 23 States. It causes heavy losses both from high mortality and diminished production. Many species of ticks, flies, and at least one species of mosquitoes have been found capable of transmitting the infection. It is also readily transmitted mechanically by various surgical procedures. Animals that recover from an attack retain the infective agent in their blood for years, and in many instances probably for life, and serve as reservoirs of infection for clean cattle. Experiments now in progress have shown that by special treatment of the blood of carrier animals by certain biological procedures, diagnosis of the carrier state can be accomplished by direct microscopic examination. Attempts are being made to render this procedure practical under field conditions.

(d) Rabies investigations: Rabies has appeared in a majority of the States to a greater or less extent in recent years. In addition to losses occasioned in livestock, the disease has a public health aspect, since rabies is transmitted to man through the bite of rabid animals. In recent years the use of vaccination procedures in dogs has been undertaken in controlling outbreaks of the disease. While standard methods of procedure in preparing vaccines are in use, there is need for improved methods of testing the potency of rabies vaccines. Moreover, there is still need for improvement in methods of diagnosing the disease.

(e) Swine erysipelas investigations: During recent years swine erysipelas has become a serious disease of swine in certain sections of the country



and is on the increase. Losses are occasioned from the acute form of the disease with a mortality of 10 to 50 percent and in retarded growth of animals with deformities of the joints. The live culture and serum method of vaccination has been used in Europe for a number of years. This method is now in use experimentally in certain restricted areas where the disease is most prevalent in this country. The use of this method of vaccination is restricted since there is a hazard in its use in areas where the disease does not exist. For the period April 1938 to June 1941, inclusive, over 500,000 swine were vaccinated with culture and serum against swine erysipelas in the State of Nebraska, involving a total number of 8,365 herds. In 95 of these herds, erysipelas appeared, representing about 1 percent of the total, an extremely small number. However, detailed information has not yet been obtained to definitely establish its value over a sufficient period of time.

The Second Supplemental National Defense Appropriation Act, 1942, appropriated \$16,500 for expansion of this work in the fiscal year 1942. Through cooperation with States in which swine erysipelas is a hazard to pork production, the swine erysipelas culture will be prepared and distributed for use in herds authorized by the State veterinarian. Detailed records will be kept of the results obtained. There will be no increase in appropriation to carry on expanded activities in the fiscal year 1943, but it is expected that emphasis on other investigations will be shifted sufficiently by that time to make available sufficient funds so that there may be no diminution in the work in 1943.

Improvement in methods of diagnosing swine erysipelas in the field is needed. The agglutination test for the diagnosis of the disease developed several years ago is receiving practical application in the field and has been of considerable aid in diagnosis.

(f) Miscellaneous disease investigations: The diseases in this group include glanders, blackleg, influenza, paratyphoid infection of swine, hemorrhagic septicemia (shipping fever), footrot, alkali disease, anthrax, and other diseases. Some of these diseases have been major problems in the past, but studies have resulted in finding effective methods for their control. Other diseases of the group, by reason of their nature or limited distribution, are of insufficient economic importance to warrant special investigation. The chief problem is related to diagnosis and investigation of the inciting and accessory causative factors.

(g) Investigations of brucellosis of cattle (Bang's disease): Over a period of years, various experiments have been conducted in an endeavor to develop a satisfactory means of artificially immunizing cattle against brucellosis. During the course of these experiments a viable vaccine was developed from a culture of low virulence of the Brucella organism, which for purposes of identification has been designated as Strain 19. This vaccine when used on calves in station-controlled experiments gave such encouraging results as to warrant a further trial under natural conditions. A field project was inaugurated in January 1936 to evaluate the vaccine when applied under natural conditions and to determine the efficacy of a vaccination procedure as a practical means in the control and eradication of this malady. The





results of this project were so encouraging as to warrant the presentation, to the United States Live Stock Sanitary Association at its annual meeting in December, 1940, of a plan for the official recognition of vaccination of calves as an aid in cooperative Bang's disease control work. Thirty-four States have adopted the plan in one or more forms.

Research work dealing with the virulence of Strain 19 *Brucella abortus* after multiple serial passage in cattle and guinea pigs has shown that the low virulence of the strain could not be increased by animal passage, and that vaccinated animals did not spread Bang's disease to susceptible animals.

(h) Stock poisoning by plants: Feeding experiments are conducted on domestic stock and laboratory animals by using definite quantities of various parts of plants suspected of being poisonous, at different stages of growth, under different weather and soil conditions. Observations of animals for toxic symptoms and study of pathology at autopsy is made. Chemical analyses is made of plants shown to be toxic for livestock to determine the exact nature or chemical constitution of the toxic principles.

In the past year an experiment with poison hemlock has shown that the plant is more poisonous to sheep when grown in a hot, dry season than in a cool, moist season.

(i) Poultry disease investigations: The principal diseases under investigation are pullorum disease, laryngotracheitis, tuberculosis, and fowl pox. These are widespread in distribution and are the cause of heavy losses to the poultry industry. In those diseases that lend themselves to control by immunization, effective vaccination procedures are studied. In other affections where eradication is deemed practical, diagnostic tests are under investigation. Considering pullorum disease as an example, the problem of its control rests on the elimination of carriers from the flocks.

A whole blood antigen recently developed in the Bureau and known as T. G. Formula Pullorum Disease Stained Antigen eliminates certain nonspecific reactions that occur in some flocks with the old type whole blood stained antigen, which also was developed in the Bureau. The new antigen in addition to eliminating the nonspecific reactors is cheaper to produce than the old type.

(j) Swamp fever investigations: Swamp fever is a widely distributed disease of horses and mules, having been authentically reported from 29 States. The losses occasioned by this disease are very heavy due to death and more particularly to greatly diminished ability to perform work by the many chronically affected animals. There is need for more complete knowledge on the modes of transmission and dissemination of the infection and particularly for a reliable diagnostic test and effective treatment.

In a transmission experiment the stable fly and the horse fly were shown capable of transmitting infection by bites from an infected horse to a normal horse. It was also shown that the disease can be produced by a minute quantity of blood, and mechanically by repeated needle pricks from infected to healthy horses.





(k) Tuberculosis and tuberculin: Tuberculosis in cattle, although markedly reduced, is still prevalent in every State. While this condition exists, investigation is necessary and there is need also for continued studies of the various causes of nonspecific reactions to the tuberculin test. The avian type has become of economic importance and much investigation is needed to formulate plans for its control. In the hog-chicken experiment on avian tuberculosis, swine exposed to tuberculous chickens developed slight lesions of tuberculosis. An experiment is being carried on in the contaminated enclosure to determine how long avian tubercle bacilli in this lot will be virulent for swine. Tests of 45 commercially prepared tuberculin for purity and potency showed 6 to be unsatisfactory.

(l) Types of tubercle bacilli: Occasionally in herds that have passed several tuberculin tests, reactors are found and at post-mortem examination lesions of tuberculosis are discovered. In order to prevent reinfection of the herd, the source of the infection and particularly its type must be sought. The infection may be traced to bovine, human, or avian source according to the type of bacillus determined through investigation of material from the herd in question. Microscopic studies are made of selected specimens for tubercle bacilli, laboratory animals are inoculated and cultural tests made to determine the type of bacillus present.

(m) Johne's disease investigations: Johne's disease (paratuberculosis) is caused by a germ, many of whose characteristics are similar to those of the tubercle bacillus. The affection has been recognized for many years in the United States and is becoming more prevalent, causing heavy losses particularly in dairy herds. As with tuberculosis, clinical diagnosis is uncertain in many cases and is unreliable for use in any control or eradication programs. The most important problem is the development of a practical and reliable field test. A product, johnin, in many respects similar to tuberculin, has been prepared. Improvement and standardization of the product are needed. The johnin test is carried out on dairy herds, both infected and free from known infection. The reactors are slaughtered and appropriate specimens checked by laboratory examination for the presence of infection.

(n) Methods of producing immunization against hog cholera: Hog cholera continues to be the most widespread and economically serious disease of hogs. A new product, crystal violet vaccine, produced in our laboratory at Ames, Iowa, has proved so successful in experimental studies that it is now being distributed for tests under field conditions to different States. It is used in the field under the supervision of State or Federal officials, who make repeated observations and reports of the condition of the treated herds. So far more than 100,000 hogs have been treated in these tests, and the reports on the whole have been favorable. However, the results indicate the need of further improvement of the product.

(o) Investigations of periodic ophthalmia of equines: The disease, an inflammation of the eyes of the horse frequently resulting in blindness, is quite widespread, particularly in the Middle West and East, and there are indications that it is increasing. Losses are very heavy due to greatly reduced value of affected animals, many of which are rendered useless. The



cause of the disease remains to be discovered. Investigations consist of (1) breeding experiments to determine what role heredity plays as a causative factor; (2) special histological studies of eyes of animals during various stages of the disease to ascertain the exact microscopic structural changes produced in this disease; (3) field investigations to learn the relation of environment, management, movement of stock, etc., to the disease; (4) experimental studies in transmission, and with certain bacterial agents with respect to their ability to engender the disease in experimental subjects. The eyes of horses affected with periodic ophthalmia have been subjected to special staining technique and examined microscopically. Peculiar, coarse, fibrillar structures in the layer of nonpigmented ciliary epithelium have been revealed. These structures have not previously been found, and although their nature and significance have not yet been determined, they are believed to have not only important diagnostic value, but also may possibly prove to be a lead in the search for the causative agent.

(p) Nutritional deficiencies of cattle: The present studies on nutritional deficiencies of cattle have dealt with the effect of vitamin A deficiency on reproductive and urinary systems of beef and dual purpose cattle. Before tangible results could be obtained it was necessary to perfect laboratory technique for measuring the degree of vitamin A deficiency and to place cattle on experimental diets. These preliminary tasks have now been completed and results are now being obtained on the vitamin A requirements for normal reproduction. A herd of beef cows, made up of animals which were largely depleted of carotene and vitamin A as yearling heifers, is being maintained on definite levels of carotene supplied as high grade alfalfa leaf meal. Cows fed 30 micrograms of carotene have given birth to deficient calves, and cows getting a 45 microgram level of carotene have had calves which were weaker than normal at birth and either died within a short time or made relatively slow growth. Calves from cows receiving a 60 microgram level of carotene or more have been definitely stronger at birth and usually have continued to grow and develop apparently normally. For the immediate future it is planned to continue the experiments on essentially the same basis as the past year in order to secure the desired data both as to numbers of animals and the detailed laboratory records to enable the expressing of definite and final conclusions on the present phase of the study.

(q) Swine brucellosis investigations: This disease is of considerable economic importance to swine raisers and also from a public health standpoint, as human beings may contract brucellosis by handling diseased swine or their carcasses. Intensive work on this disease was begun in the present fiscal year, including cooperative work with State experiment stations. Studies are being made of the susceptibility of swine of all ages to natural and artificial exposure, methods of diagnosis, immunological value of vaccines prepared from brucella abortus and suis cultures of low virulence, etc., in order that adequate methods of control and eradication may be instituted.

(r) Range paralysis investigations (avian leukosis complex): This disease is one of the major causes of losses to the poultry industry. Investigators have been handicapped by the lack of an infective agent of uniform potency and dependability. Propagation of the leukosis agent in chick embryos and





young chicks at our station at Beltsville, Maryland, has built up a "virus" of such uniformity and potency as to greatly expedite investigations. Leukosis agent Strain A is now being used in developing serological diagnostic tests and for the purpose of developing a vaccine.

(s) Nutritional factors in Necrotic Enteritis: Necrotic enteritis is a swine disease which probably ranks next to hog cholera as the cause of loss among young pigs. Recently there has been an increased interest in the problem brought about by a growing belief that the disease could and should be controlled, coupled with reports that the infection is closely associated with diet. Accordingly, it has seemed highly desirable to supplement the existing work of the Bureau on the infectious nature of the disease with an investigation of the nutritional deficiency aspects in order to permit a thorough and well directed attack on the problem. It is planned to investigate the effects of nutritional deficiencies such as nicotinic acid and other food factors in relation to resistance of pigs to bacterial infections producing various forms of enteritis with particular emphasis on the necrotic type.

(2) Investigations of parasitic diseases of animals:

(a) Index catalog of medical and veterinary parasitology and maintenance of parasite collection: The index catalog provides a basis for research, and affords prompt information in answering correspondence and in solving problems that arise in connection with the Bureau's regulatory work. Numerous periodicals, books, etc., are examined for the purpose of indexing material of value. Approximately 600 new specimens were added to the parasite collection.

(b) Poultry parasite investigations: Diets containing dry skim milk have been used by poultrymen for a number of years in efforts to check the ravages of coccidiosis, but investigations conducted during the past year showed that milk used as stated above neither reduced the mortality from coccidiosis nor promoted in other ways the health of chickens. Preliminary investigations showed that the addition of tannic acid to the drinking water of chickens, on the basis of 4 or 5 grams of tannic acid to 4,000 cc of water, reduced the mortality from coccidiosis by about 70 percent in the flocks so treated, as compared to untreated controls. In an experiment involving approximately 100 baby chicks, it was determined that sulfaguanidine incorporated into the mash had a marked effect in controlling coccidiosis. By feeding a mash containing 2 percent of the drug, coccidiosis did not develop at all and by feeding a mash containing 1 percent of the drug the infection was considerably reduced. Untreated control birds developed heavy infections with a mortality of 28 percent. In experiments with tapeworms in chickens, it was determined that the ill effects produced by these parasites could be controlled by diet. In infected birds fed a ration containing only 13 percent proteins, the weight gains of the birds were definitely retarded by the tapeworms harbored; no definite or consistent retardation in weight was noted in infected birds fed a mash containing 26 percent proteins.

(c) Swine parasite investigations: In the course of investigations on parasites affecting suckling pigs, it was determined experimentally that the rather ubiquitous threadworm (Strongyloides) produces in pigs 6 weeks old or



younger a severe diarrhea, intermittent or continuous, accompanied by loss of weight and frequently ending in death. In pigs 4 months old or older, maintained on an adequate diet, this infection, though present, did not seriously affect the host animals. These observations indicate that older pigs, though themselves not seriously affected by these threadworms, are the source of infection for suckling pigs and suggest, therefore, the need for keeping sows and their litters away from older pigs.

(d) Parasites causing and transmitting anaplasmosis in cattle: Investigations on agents causing and transmitting anaplasmosis showed that a common species of horse fly could transmit the disease from an infected to a susceptible bovine and that transmission could be effected by the flies even before the donor animal showed definite symptoms of the disease. In studies on the causative agent of anaplasmosis, it was determined that at one stage the organisms occurred free in the blood plasma and attached to the red blood cells. Whether these bodies are the cause of a disease distinct from anaplasmosis, as workers in South Africa believe, or are merely stages in the development of anaplasms, as appears to be indicated by the work done in this Bureau during the past year, still remains to be determined.

(e) Ox warble and related arthropod parasite investigations: Tests on treating cattle with derris-soap washes for the destruction of ox warbles showed that a single treatment killed from 60 to 100 percent of all grubs present, the average kill being about 90 percent. The washes reached their maximum effectiveness 10 to 15 days after application and continued to exercise a deleterious effect on the grubs up to about 25 to 30 days after treatment.

(f) Liver fluke investigations: Investigations were conducted in Angleton, Texas, and Logan, Utah, to develop methods of coping with liver flukes in cattle and sheep by ascertaining the habits of fluke-carrying snails. The snails were found to go into a state of dormancy during the dry summer months when the temporary pools in which they live and breed became dry. Although most of the adult snails succumbed to drought, the young forms were resistant, a large proportion of them surviving and resuming their role as carriers upon the return of favorable conditions. In the Rocky Mountain area the snail hosts were found to be capable of surviving long periods of freezing.

(g) Internal parasites of ruminants: In studies on feed-lot coccidiosis of lambs, it was determined that management practices, more particularly those related to feeding, are of primary importance in the dissemination of this infection. Investigations conducted in feed-lots in the Middle West showed that by eliminating corn silage, a moist feed favoring rapid development to infectivity of the causative organism, from the ration, the disease could be checked as shown by the following data: Following death losses amounting to 10 percent of 150,000 lambs confined for fattening in one establishment during the feeding season of 1938-1939, the feeding of corn silage was discontinued during the middle of the following feeding season, and the death losses were reduced to only 5 percent; during the feeding season of 1940-1941, when no corn silage was fed, the total death losses were only 2 percent, those attributable to coccidiosis being practically negligible. Preliminary investigations with the newly-introduced drug, sulfa-





guanidine, showed that the administration of this chemical in 2-gram doses per lamb daily prevented completely the acquisition of coccidial infections in 5 lambs and rapidly reduced to insignificant proportions existing heavy coccidial infections in 4 lambs. Half of the above doses of the drug subdued coccidial infections materially as long as the chemical was being administered.

Investigations on nodular worm disease of sheep showed that affected host animals retained the intestinal lesions for a period of 7-1/2 months during which their growth was materially retarded. In this period infected lambs gained only an average of 18 pounds each, whereas control lambs maintained under similar conditions gained an average of 49 pounds each. Even relatively mild infections with nodular worms, acquired slowly on pastures over a period of six months, resulted in 10 pounds less gain than that in uninfected controls. Phenothiazine was determined to be a highly effective treatment for the removal of the adult nodular worms from sheep but the practical application of this treatment as a control measure to prevent infection still remains to be determined.

In studies to develop methods of controlling stomach worms in sheep by pasture rotation, it was determined that stomach worm eggs on the ground at Beltsville, Maryland, did not develop to the infective stage when the maximum air temperature was below 65°F., regardless of whether moisture was present or absent; that air temperatures above 65°F., were favorable to the development of the parasite eggs, provided moisture was present; and that under climatic conditions prevailing at Beltsville in the summer, the infective larvae did not survive outdoors over a month, while at other seasons the survival of larvae longer than three months was almost negligible.

(h) Horse parasite investigations: Investigations were conducted on parasites of horses to develop practical methods of prevention and treatment. The drug, phenothiazine, administered with the feed in single doses, or in divided doses, on the basis of 5 grams per horse per week, caused a rapid disappearance in 4 to 8 weeks of the eggs of palisade and related worms from the droppings, this indicating that the worms themselves had also been eliminated from the host animals. The large roundworms were not controlled by this treatment.

The small doses of the drug, did not produce any anemia or other untoward reactions in the test horses. The administration of full therapeutic doses of phenothiazine to horses was followed at times by unfavorable reactions, as evidenced by anemia and icterus. The reasons for these untoward reactions to phenothiazine have not been ascertained as yet.

(i) Miscellaneous parasite investigations, including parasites of dogs, cats, wild animals, etc.: Parasites of sheep, goats, and cattle are identical in many cases with parasites affecting deer and other wild ruminants, and some of our most important parasites of sheep and cattle have originated as parasites of wild ruminants in recent times. The same is true for parasites of domesticated and wild birds. Any competent study of parasites of domesticated animals must take cognizance of parasites of wild animals. Numerous specimens of economically important parasites collected by various governmental agencies,





educational institutions, conservationists and others are identified. Inasmuch as a number of parasites of dogs are transmissible to man, investigations essential to their control are being made.

(j) Anthelmintics and insecticides for the destruction of parasites: Since parasites cannot in all cases be controlled by sanitation alone, this being particularly true of parasites of horses and ruminants, it is important to develop medicinal treatments in order to afford infested animals relief from the drain of parasitic infestation. In view of various claims made regarding the toxicity of phenothiazine to equines, tests are being conducted with doses in excess of demonstrated therapeutic doses. Tests of this drug as a satisfactory anthelmintic for parasites of sheep, goats and chickens are being made.

(k) Investigations on trichinosis in swine: In studies on trichinosis in swine, it was found that only 1 percent of 1,300 farm-raised hogs were lightly to moderately infected, whereas nearly 11 percent of about 300 garbage-fed hogs were infected with these parasites, some of the hogs harboring them in very large numbers. Continued investigations to develop a skin test for the diagnosis of trichinosis in hogs before slaughter showed that only 70 percent of the animals, later found to be infected, gave positive reactions, and that 32 percent of the uninfected swine also gave positive reactions. The technique of the skin test as used at present is, therefore, not applicable to the detection of swine trichinosis. A survey on the incidence of trichinae in rats and mice showed that from about 1 to 3 percent of these animals harbored these parasites, in some cases in very large numbers. This suggests the possibility that hogs may acquire trichinosis occasionally by eating infected rats or mice and that the heavy infections sometimes seen in hogs are possibly so acquired.

(l) Investigations of bovine trichomoniasis: Experiments on trichomonad disease of cattle showed that one or more infections from which recovery was complete, as evidenced by normal pregnancy and parturition, did not protect in all cases against a subsequent attack of the disease following coitus with an infected bull. Although previous work showed some evidence of acquired immunity, the data collected during the past year showed conclusively that some cows, at any rate, did not develop a solid immunity even following two repeated attacks of this disease. It was determined, moreover, that contrary to previous ideas, an infected bull, which is the disseminator of trichomonad infection, recovered spontaneously, as shown by the failure to find organisms in the prepuce and the inability of the animal to pass on the infection to a susceptible heifer.



(d) ERADICATING TUBERCULOSIS AND BANG'S DISEASE

Appropriation Act, 1942 plus \$16,116  
 supplemental for within-grade promotions . . . . \$5,614,256 (a)  
 Budget estimate, 1943 . . . . . 4,589,000 (b)  
 Change from 1942:  
 Net reduction in working funds . . . . . -348,140  
 Additional for administrative promotions . . . . + 22,884  
 Decrease in direct appropriation, offset . . .  
 by increase in reappropriated funds . . . . . -700,000  
 Net decrease . . . . . -1,025,256

- (a) Together with \$750,000 of the unobligated balance under this appropriation for the fiscal year 1941.  
 (b) Together with \$1,450,000 of the unobligated balance under this appropriation for the fiscal year 1940. (See Project Statement and explanation which follow.)

PROJECT STATEMENT

| Projects  | 1941        | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|-------------|---------------------|---------------------|-------------------------|
| 1. Eradicating tuberculosis in livestock (including poultry) .            | \$1,873,318 | \$1,796,000         | \$1,500,000         | -\$296,000(1)           |
| 2. Eradicating Bang's disease. .  | 4,979,065   | 4,552,140           | 4,500,000           | - 52,140(2)             |
| 3. Net cost of within-grade promotions . . . . .                          | - -         | 16,116              | 39,000              | + 22,884                |
| Total . . . . .   | 6,852,383   | 6,364,256           | 6,039,000           | - 525,256               |
| Transferred to "Diseases of animals, Bureau of Animal Industry" . . . . . | + 195,000   | - -                 | - -                 | - -                     |
| Transferred to "Salaries, Office of the Secretary" . . . . .              | + 5,125     | - -                 | - -                 | - -                     |
| Reappropriation of prior year balances. . . . .                           | -3,250,000  | - 750,000           | -1,450,000          | - 700,000               |
| Unobligated balance . . . . .   | 497,492     | - -                 | - -                 | - -                     |
| Total appropriation . . . . .   | 4,300,000   | 5,614,256           | 4,589,000           | -1,025,256              |





### DECREASES

The decrease in working funds of \$348,140 in this item for 1943 consists of:

(1) A decrease of \$296,000 under the project "Eradicating tuberculosis in livestock (including poultry)." The volume of work has been somewhat reduced owing to the progress of the work. There will be a decrease in personnel of approximately 54 junior veterinarians and attendant travel and other expenses, together with a decrease of \$150,000 for indemnities, principally in the States of California, Iowa, Illinois, New York, Pennsylvania and South Dakota, where the number of reactors has been greatly reduced owing to the progress made in eradicating this disease.

(2) A decrease of \$52,140 in operating expenses under the project "Eradicating Bang's disease" for temporary employees and attendant travel and other expenses.

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Tuberculosis eradication has been in progress since 1917. Since 1934 both regular and special funds (Jones-Connally and Section 37, Act of August 24, 1935) have been used for this purpose. Bang's disease eradication was inaugurated in the fiscal year 1935, and this work, together with special experimental work on livestock diseases as authorized by Section 37, was financed exclusively with special funds through the fiscal year 1938. The 1939 Agricultural Appropriation Act provided for continuation of tuberculosis eradication, Bang's disease eradication, and special experimentation under one consolidated appropriation item entitled "Eradicating tuberculosis and Bang's disease," with a direct appropriation of \$5,403,000, together with the unexpended balance of the special funds estimated at \$7,827,000, making in all \$13,230,000, of which approximately \$4,000,000 remained unobligated and was reappropriated for 1940.

The 1940 Agricultural Appropriation Act under the item "Eradicating tuberculosis and Bang's disease," appropriated \$8,300,000, together with the unexpended balance of the special funds estimated at \$4,000,000.

The \$4,000,000 unexpended balance of the special funds remained unobligated in the fiscal year 1940, and was reappropriated under the 1941 Act, which also provided for a direct appropriation of \$4,300,000 making \$8,300,000 available for the fiscal year 1941.

The 1942 Agricultural Appropriation Act reappropriated \$750,000 of the unobligated balance of 1941 funds and provided \$5,598,140 by direct appropriation.

The 1943 Budget Estimates provide for a direct appropriation of \$4,589,000 (including \$39,000 for within-grade promotions) and a reappropriation of \$1,450,000 of the unobligated balance of the \$8,300,000 direct appropriation under this head for the fiscal year 1940.

Table I, which follows, shows obligations of regular and special funds for the fiscal years 1934 through 1941; allotments, 1942; and the Budget Estimate, 1943.

Table II shows, by States and Territories, the allotments of funds for tuberculosis and Bang's disease work during the fiscal year 1942.



TABLE I.--STATEMENT OF OBLIGATIONS AND ALLOTMENTS FOR ERADICATING TUBERCULOSIS, ERADICATING BANG'S DISEASE, AND SPECIAL EXPERIMENTATION IN DISEASES OF LIVESTOCK, FISCAL YEARS 1934-1943

|                       | Eradicating Tuberculosis |             |             | Eradicating Bang's Disease |              |              | Experimentation in Dis. of Livestock |          |              |
|-----------------------|--------------------------|-------------|-------------|----------------------------|--------------|--------------|--------------------------------------|----------|--------------|
|                       | Jones-Connally & Sec. 37 |             | Total       | Jones Connally & Sec. 37   |              | Total        | Reg. Funds                           |          | Total        |
|                       | Reg. Funds               |             |             | Reg. Funds                 |              |              | Reg. Funds                           | Sec. 37  |              |
| Obligations:          |                          |             |             |                            |              |              |                                      |          |              |
| 1934                  | \$3,877,293              | - -         | \$3,877,293 | - -                        | - -          | - -          | - -                                  | - -      | \$3,877,293  |
| 1935                  | 1,966,490                | \$9,500,000 | 11,466,490  | - -                        | \$10,687,175 | \$10,687,175 | - -                                  | - -      | 22,153,655   |
| 1936                  | 1,836,817                | 5,961,671   | 7,598,488   | - -                        | 14,345,116   | 14,345,116   | - -                                  | - -      | 21,956,901   |
| 1937                  | 1,429,514                | 2,720,962   | 4,150,476   | - -                        | 13,481,908   | 13,481,908   | - -                                  | \$13,297 | 17,738,514   |
| 1938                  | 1,558,956                | 1,775,000   | 3,333,956   | - -                        | 11,653,062   | 11,653,062   | - -                                  | 106,130  | 15,116,956   |
| 1939                  | 1,603,000                | 739,439     | 2,342,439   | 3,800,000                  | 2,937,786    | 6,737,786    | - -                                  | 129,938  | 9,178,069    |
| 1940                  | 2,156,798                | - -         | 2,156,798   | 4,598,013                  | - -          | 4,598,013    | \$98,493                             | - -      | 6,853,304    |
| 1941                  | 1,873,318                | - -         | 1,873,318   | 2,231,682                  | 2,747,383    | 4,979,065    | - 1/                                 | - -      | 6,852,382    |
| Allotments:           |                          |             |             |                            |              |              |                                      |          |              |
| 1942                  | 1,796,000                | - -         | 1,796,000   | 3,802,140                  | 750,000      | 4,552,140    | - -                                  | - -      | 6,348,140 3/ |
| Budget estimate, 1943 | 1,500,000                | - -         | 1,500,000   | 4,500,000                  | - -          | 4,500,000    | - -                                  | - -      | 6,000,000 4/ |
| Grand Total           | 19,398,186               | 20,697,072  | 40,095,258  | 18,931,835                 | 56,602,430   | 75,534,265   | 98,493                               | 347,209  | 116,075,225  |

1/ Transferred to "Diseases of animals" in the 1942 appropriation.

2/ Excludes \$5,125 transferred to "Salaries, Office of Secretary" in the 1942 appropriation act.

3/ Excludes \$16,116 for within-grade promotions.

4/ Excludes \$39,000 for within-grade promotions; includes \$1,450,000 reappropriation of 1940 unobligated balance.



TABLE II -- ERADICATING TUBERCULOSIS AND BANG'S DISEASE

1942 Allotments  
(Combined funds)

| State  | Eradicating tuberculosis |             | Eradicating Bang's disease |             | Total     |
|--|--------------------------|-------------|----------------------------|-------------|-----------|
|  | Salaries and expenses    | Indemnities | Salaries and expenses      | Indemnities |           |
| Eradicating tuberculosis and Bang's disease: |                          |             |                            |             |           |
| Alabama.....                                 | \$26,000                 | \$ 1,000    | \$135,000                  | \$ 60,000   | \$222,000 |
| Arizona.....                                 | 7,000                    | 3,000       | 15,000                     | 5,000       | 30,000    |
| Arkansas.....                                | 6,000                    | -           | 90,000                     | 20,000      | 116,000   |
| California.....                              | 160,000                  | 115,000     | 1,000                      | -           | 276,000   |
| Colorado.....                                | 14,000                   | 2,000       | 24,000                     | -           | 40,000    |
| Connecticut.....                             | 17,000                   | 9,000       | 2,000                      | 10,000      | 38,000    |
| Delaware.....                                | 4,000                    | 2,000       | 13,000                     | 20,000      | 39,000    |
| District of Columbia.....                    | 67,000                   | -           | 125,140                    | -           | 192,140   |
| Florida.....                                 | 11,000                   | 3,000       | 80,000                     | 40,000      | 134,000   |
| Georgia.....                                 | 6,000                    | -           | 100,000                    | 45,000      | 151,000   |
| Idaho.....                                   | 9,000                    | 1,000       | 60,000                     | 30,000      | 100,000   |
| Illinois.....                                | 27,000                   | 20,000      | 36,000                     | 50,000      | 153,000   |
| Indiana.....                                 | 45,000                   | 6,000       | 22,000                     | -           | 73,000    |
| Iowa.....                                    | 45,000                   | 45,000      | 75,000                     | 150,000     | 315,000   |
| Kansas.....                                  | 28,000                   | 7,000       | 47,000                     | 10,000      | 92,000    |
| Kentucky.....                                | 17,000                   | 2,000       | 26,000                     | 12,500      | 57,500    |
| Louisiana.....                               | 25,000                   | 1,000       | 64,000                     | 25,000      | 115,000   |
| Maine.....                                   | 14,000                   | 1,000       | 45,000                     | 80,000      | 140,000   |
| Maryland.....                                | 26,000                   | 9,000       | 65,000                     | 100,000     | 200,000   |
| Massachusetts.....                           | 23,000                   | 9,000       | 2,000                      | -           | 34,000    |
| Michigan.....                                | 25,000                   | 5,000       | 85,000                     | 75,000      | 190,000   |
| Minnesota.....                               | 26,000                   | 13,000      | 155,000                    | 120,000     | 314,000   |
| Mississippi.....                             | 22,000                   | 1,000       | 60,000                     | 20,000      | 103,000   |
| Missouri.....                                | 19,000                   | 1,000       | 80,000                     | 30,000      | 130,000   |
| Montana.....                                 | 20,000                   | 1,000       | 7,000                      | 8,000       | 36,000    |
| Nebraska.....                                | 33,000                   | 3,000       | 27,000                     | 15,000      | 78,000    |
| Nevada.....                                  | 7,000                    | 1,000       | 10,000                     | -           | 18,000    |
| New Hampshire.....                           | 13,000                   | 1,000       | 15,000                     | 80,000      | 109,000   |
| New Jersey.....                              | 15,000                   | 12,000      | 10,000                     | 15,000      | 52,000    |
| New Mexico.....                              | 5,000                    | 1,000       | 30,000                     | 5,000       | 41,000    |
| New York.....                                | 50,000                   | 90,000      | 15,000                     | 84,000      | 239,000   |
| North Carolina.....                          | 8,000                    | 500         | 60,000                     | 20,000      | 88,500    |
| North Dakota.....                            | 50,000                   | 4,000       | 75,000                     | 20,000      | 149,000   |





TABLE II - Continued

| State               | Eradicating tuberculosis |             | Eradicating Bang's disease |             | Total     |
|---------------------|--------------------------|-------------|----------------------------|-------------|-----------|
|                     | Salaries and expenses    | Indemnities | Salaries and expenses      | Indemnities |           |
| Ohio.....           | \$33,000                 | \$10,000    | \$57,000                   | \$135,000   | \$235,000 |
| Oklahoma.....       | 15,000                   | 2,000       | 62,000                     | -           | 79,000    |
| Oregon.....         | 16,000                   | 8,000       | 110,000                    | 32,000      | 166,000   |
| Pennsylvania.....   | 50,000                   | 38,100      | 93,000                     | 320,000     | 501,100   |
| Rhode Island.....   | 11,000                   | 2,000       | -                          | 9,800       | 22,800    |
| South Carolina..... | 9,000                    | 500         | 22,000                     | 3,000       | 34,500    |
| South Dakota.....   | 82,000                   | 8,000       | 17,000                     | 2,500       | 109,500   |
| Tennessee.....      | 24,000                   | 900         | 30,000                     | 58,000      | 112,900   |
| Texas.....          | 33,000                   | 2,000       | 35,000                     | -           | 70,000    |
| Utah.....           | 8,000                    | 6,000       | 40,000                     | 15,000      | 69,000    |
| Vermont.....        | 11,000                   | 10,000      | 17,000                     | 4,500       | 42,500    |
| Virginia.....       | 22,000                   | 7,000       | 55,000                     | 75,000      | 159,000   |
| Washington.....     | 17,000                   | 4,000       | 90,000                     | 90,000      | 201,000   |
| West Virginia.....  | 18,000                   | 1,000       | 60,000                     | 15,000      | 94,000    |
| Wisconsin.....      | 47,000                   | 18,000      | 110,000                    | 170,000     | 345,000   |
| Wyoming.....        | 6,000                    | 1,000       | 18,000                     | 700         | 25,700    |
| Alaska.....         | -                        | 1,000       | -                          | -           | 1,000     |
| Hawaii.....         | 2,000                    | 1,000       | -                          | -           | 3,000     |
| Puerto Rico.....    | 22,000                   | 10,000      | -                          | -           | 32,000    |
| Total.....          | 1,296,000                | 500,000     | 2,472,140                  | 2,080,000   | 6,348,140 |

|  |           |
|--|-----------|
| Eradicating tuberculosis and Bang's disease..... | 6,348,140 |
| Net cost of within-grade promotions.....         | 16,116    |
| Total .....                                      | 6,364,256 |



## CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (new language underscored, deleted matter enclosed with brackets):

Eradicating tuberculosis and Bang's disease: For the control and eradication of the diseases of tuberculosis and paratuberculosis of animals, avian tuberculosis, and Bang's disease of cattle, [\$5,598,140] \$4,598,000, together with [\$750,000] \$1,450,000 of the unobligated balance of the appropriation made under this head for the fiscal year [1941] 1940: Provided,\*\*

This change brings up to date the clause, carried annually hereunder for the past several years, authorizing the use of the unobligated balance of prior-year funds provided for the purposes of this appropriation. For 1943, it makes available a reappropriation of \$1,450,000 of the unobligated balance of the appropriation made under this head for the fiscal year 1940.

## WORK UNDER THIS APPROPRIATION

Object: The work under this appropriation provides for the eradication of tuberculosis in livestock (including poultry), paratuberculosis in cattle, and Bang's disease (brucellosis or contagious abortion) in cattle, with partial compensation to owners of cattle condemned and destroyed because of being affected with the disease.

The problem and its significance: Tuberculosis, when present, is one of the most serious diseases of cattle, swine, and poultry, because of its effect in reducing production and causing a considerable loss of meat condemned as unfit for food. Notwithstanding the great progress made in stamping out this disease, it is reliably estimated that an annual loss of \$10,000,000 can be attributed to it, \$5,500,000 of which is borne by the poultry industry, \$2,000,000 by the swine industry, and \$2,500,000 by the cattle industry. In swine it may progress to a point where it becomes generalized, but in most of the carcasses showing evidence of the disease on post-mortem examination, only slight lesions are found. Avian (fowl) tuberculosis is particularly difficult to eradicate because of the fact that the organisms are so resistant and will live for many months in the soil.

Bang's disease is found among cattle in practically all sections of the United States, although the degree of infection is much greater in some localities than in others. In those sections where there has been a considerable exchange of cattle, a high degree of infection is found. This condition also obtains in and around the large milk-shed areas. It is conservatively estimated that this disease is responsible for an annual loss of \$30,000,000 to our livestock industry. Approximately 75 percent of all breeding trouble in cattle is caused by this disease. Common results of the infection are premature birth of calves and sterility.





General plan: Eradication work is conducted in cooperation with livestock sanitary officials of the various States, and is governed by State laws and regulations. Tests are applied to the cattle by veterinarians employed by the Bureau, States and counties, and by practicing accredited veterinarians, to detect the existence of any infection in the living animal. Reactors are appraised at their market value, taking into consideration their quality as breeding and dairy animals, after which they are slaughtered under supervision. In addition to their market value, the owner receives from the Federal Government one-third of the difference between the appraised value and the salvage, not to exceed \$25 for grade animals and \$50 for registered purebred animals. Federal payment is further limited to an amount not exceeding that paid by the cooperating State, county, and municipality. Payment from all sources, including the salvage, cannot exceed the appraised value of the animal. The premises are cleaned and disinfected in an approved manner. Supervision is maintained over the disposition of reactors which have been consigned to public stockyards for slaughter, and over the testing at such stockyards of cattle to be shipped interstate for dairy or breeding purposes.

In combating avian tuberculosis, the veterinarians employed in the field cooperate with the local livestock sanitary officials and the owners of poultry flocks. Cooperation is also obtained from certain local organizations and owners of hatcheries.

Progress and current program:

1. Eradicating Tuberculosis in Livestock (including poultry): Since the inauguration of the cooperative tuberculosis eradication work in 1917, there has been a very marked reduction in the degree of infection of tuberculosis. At the beginning of the campaign approximately 5 percent of the cattle tested disclosed infection, whereas during the fiscal year 1941 only three-tenths of 1 percent reacted to the test. Every county in every State, the District of Columbia, Puerto Rico, and the Virgin Islands, are now listed as modified accredited areas. Since the cooperative work was undertaken, through the fiscal year 1941, approximately 241,950,000 tuberculin tests have been applied to cattle, disclosing about 3,809,000 reactors.

During the fiscal year 1941 the average appraisal of reactors was \$96.30; the average salvage, \$40.99; the average State indemnity, \$20.95; and the average Federal indemnity, \$16.48. It will thus be noted that on an average appraisal of \$96.50, the owner received from all sources for his tuberculous animals a total of \$78.42. On June 30, 1941, 6,235,138 herds, containing 62,696,167 cattle, were under supervision for the eradication of tuberculosis.

During the past year the field veterinarians engaged in tuberculosis eradication work observed 125,813 flocks, containing 16,217,662 fowls, located in 11 States. Tuberculosis was disclosed in 5,627 flocks. About 18 veterinarians of the Bureau devoted practically their entire time to the avian tuberculosis project, visiting 11,454 farms, and observing 1,686,850 fowls. Infection was reported on 2,511 farms.



Paratuberculosis, or Johne's disease, exists to some extent among cattle in the United States. While this is a difficult disease on which to make a diagnosis, 3,151 cattle were tested during the past year, disclosing 168 reactors, or 5.3 percent.

All the tuberculin used in this work is prepared by the Bureau. During the past fiscal year approximately 1,235,000 cc of this product was used in the work.

2. Eradicating Bang's Disease in Cattle: Since the cooperative campaign for the eradication of Bang's disease in cattle was undertaken in July 1934, very satisfactory progress has been made. In many sections of the country there is a great demand on the part of the cattle owners that the work continue. Approximately 70,500 herds, containing about 1,390,000 cattle, having passed 3 negative tests within a period of 1 year, had qualified as accredited Bang's disease-free herds on November 1, 1941. In 13 States more than 50 percent of the breeding cattle over 6 months of age are under supervision. During the 7 years in which this work has been conducted, agglutination blood tests, including retests, have been applied to approximately 48,117,000 cattle, of which about 2,134,000 have been removed as reactors.

During the fiscal year 1941, a total of 7,737,341 agglutination blood tests were applied to cattle, disclosing 182,075 reactors, or 2.4 percent. This is the lowest degree of infection reported since the work began. During that period the average appraisal of reactors was \$93.28; the average salvage, \$37.68; the average State indemnity, \$17.19; and the average Federal indemnity, \$15.19. Owner received from all sources for his Bang's disease reacting cattle a total of \$70.06. On June 30, 1941, 1,883,914 herds, containing 13,932,693 cattle, were under supervision for the eradication of Bang's disease. Approximately 1,175,000 cattle were on the list waiting to be tested.

As far as the Federal Government is concerned, this work is conducted on a voluntary basis, but in quite a number of States plans have been made to take up the work on an area basis, which makes it necessary to test all cattle over 6 months of age, except steers, in those areas. On September 2, 1941, 446 counties, located in 23 States, had been declared modified accredited Bang's disease-free areas, indicating that the percentage of cattle that reacted to the test did not exceed 1 percent of the cattle tested, and the number of infected herds did not exceed 5 percent of the total number of herds in those areas. Area work is being conducted in 195 additional counties.

At the annual meeting of the United States Livestock Sanitary Association in December 1940, the Bureau presented a plan for the official recognition of vaccination of calves as an aid in the cooperative Bang's disease control work. Where the owner elects to adopt the vaccinal procedure, the plan calls for the testing of all cattle over 6 months of age. The vaccination of all animals should be confined to calves between 4 and 8 months of age, 6 months being the preferable age. The age and date of vaccination of each animal is properly recorded, and the identity of each animal definitely established. Animals in herds in which vaccination is practiced are not to be disposed of, except for immediate slaughter, without written permission of the cooperating State or Bureau officials. A herd under the vaccinal plan may be certified as a "Herd





Free of Brucellosis" for a period of 1 year when all animals in the herd over 2 years of age reveal at least 2 negative reactions to official blood agglutination tests, properly spaced, and the vaccinated animals under 2 years of age show a satisfactory blood titer. The payment of Federal indemnity for adult cattle in such herds that react to the test depends upon the circumstances in the individual States. Inasmuch as the success of any campaign of this nature depends, to a large extent, upon the conditions prevailing in the individual States, the plan as officially recognized by the Bureau has taken such conditions into consideration. Since January 1, 1941, approximately 48,000 calves between 4 and 8 months of age have been vaccinated in official work. All the antigen used in official Bang's disease testing is produced by the Bureau, as well as some of the vaccine for use in official calfhood vaccination work.

(e) ERADICATING CATTLE TICKS

|  |                       |
|--|-----------------------|
| Appropriations Act, 1942, plus \$629           |                       |
| supplemental for within-grade promotions ..... | \$300,629             |
| Budget estimate, 1943.....                     | <u>276,000</u>        |
| Change from 1942:                              |                       |
| Net reduction in working funds.....            | -25,000               |
| Additional for administrative promotions.....  | <u>371</u>            |
| Net decrease.....                              | <u><u>-24,629</u></u> |

PROJECT STATEMENT

| Projects                                       | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|-----------|---------------------|---------------------|-------------------------|
| 1. Eradicating cattle ticks...                 | \$294,774 | \$300,000           | \$275,000           | - \$25,000 (1)          |
| 2. Net cost of within-grade<br>promotions..... | - -       | 629                 | 1,000               | + 371                   |
| Unobligated balance.....                       | 30,226    | - -                 | - -                 | - -                     |
| Total .....                                    | 325,000   | 300,629             | 276,000             | - 24,629                |

DECREASE

(1) The decrease of \$25,000 in working funds for eradicating cattle ticks will be met by reducing the number of temporary agents assigned to this work. The curtailment in the work will be chiefly in Florida, Louisiana and Texas.





# WORK UNDER THIS APPROPRIATION

Objective: To free the United States of the serious disease splenetic or tick fever by eradicating the cattle fever tick which is the only natural carrier of this disease.

The problem and its significance: The chief economic importance of the cattle fever tick lies in the fact that this parasite is the only natural carrier of the disease splenetic or tick fever of cattle, and that so long as this disease is endemic in any region it discourages or prevents the development of the beef and dairy industries and particularly inhibits the improvement of the native stock by preventing the introduction of improved breeding cattle. It is increasingly important that the freed areas be protected from reinfestation by eradicating the tick in the few remaining sections of the country and by controlling livestock movements from tick areas.

General plan: The plan is to establish and direct effective eradication methods in the several tick-infested States and to assist cooperating State agencies in conducting the work of eradication, and to prevent reinfestation in tick-free areas by the proper treatment and control of livestock movements from tick-infested areas. Systematic dipping of cattle in an arsenical solution is conducted cooperatively with the States, under provisions of State laws.

Examples of progress and current program: Since this project was started in 1906, approximately 99 percent of the area then under Federal quarantine has been released. This includes not only quarantined areas in the continental United States, but the territories of Puerto Rico, and the Virgin Islands as well. The area still remaining under Federal quarantine in continental United States is now confined to parts of Florida and Texas. The success of this project has resulted in a considerable expansion in the beef and dairy industries and a marked improvement in the quality of cattle grown throughout the South.

## (f) HOG CHOLERA CONTROL

|  |                |
|--|----------------|
| Appropriation Act, 1942, plus                        |                |
| \$769 supplemental for within-grade promotions . . . | \$113,497      |
| Budget estimate, 1943 . . . . .                      | <u>102,000</u> |
| Change from 1942:                                    |                |
| Net reduction in working funds . . . . .             | -12,728        |
| Additional for administrative promotions . . . . .   | + 1,231        |
| Net decrease . . . . .                               | <u>-11,497</u> |

## PROJECT STATEMENT

| Projects  | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|-----------|---------------------|---------------------|-------------------------|
| 1. Hog cholera control. . . . .                     | \$112,728 | \$112,728           | \$100,000           | -\$12,728 (1)           |
| 2. Net cost of within-grade<br>promotions . . . . . | - -       | 769                 | 2,000               | + 1,231                 |
| Total . . . . .                                     | 112,728   | 113,497             | 102,000             | - 11,497                |



# DECREASE

(1) The decrease of \$12,728 for hog-cholera control will be met by reducing, by the equivalent of three full-time veterinarians and one part-time veterinarian and attendant travel and other expenses, the services rendered swine producers in several States in combating outbreaks of hog cholera.

## WORK UNDER THIS APPROPRIATION

Objective: To assist swine growers in preventing outbreaks of hog cholera and in controlling this highly infectious and fatal disease of swine when outbreaks occur,

The problem and its significance: The problem is to secure the widest application of effective preventive and control measures and thereby reduce losses from this disease; to demonstrate the importance of sanitary surroundings in preventing and controlling swine diseases; and to prevent the dissemination of swine diseases by controlling the movement of diseased swine or the exposure of healthy swine to an infected premise. Hog cholera is the most serious disease of swine and is found in all sections of the country. It takes the highest death toll of all hog diseases and where uncontrolled is capable of ruining the swine industry.

General plan: Specially trained veterinarians are stationed in the principal swine growing sections of the country to consult with and assist veterinary practitioners and others in diagnosing swine diseases and through meetings and by personal contact to advise and demonstrate to farmers and others the approved methods of preventing and controlling swine diseases.

Examples of progress and current program: During the fiscal year ending June 30, 1941, through their visits to farms and attendance at meetings, these veterinarians had opportunity for 77,379 farm inspections and consultations relating to swine diseases with farmers, veterinarians, State officials, and others. Educational work was continued by these veterinarians, who attended 347 meetings at which there was an attendance of 26,244 persons. Demonstrations in the use and efficacy of the serum treatments were given in the treatment of 39,727 hogs. During the year 7,497 outbreaks of cholera were reported to these veterinarians. These measures have greatly reduced losses from hog cholera and have prevented widespread outbreaks of this disease.

## (g) INSPECTION AND QUARANTINE

|   |                |
|---|----------------|
| Appropriation Act, 1942 plus \$7,927                        |                |
| supplemental for within-grade promotions . . . . .          | \$619,427      |
| Second Supplemental National Defense                        |                |
| Appropriation Act, 1942 (for eradicating dourine) . . . . . | 16,500         |
| Total available, 1942 . . . . .                             | 635,927        |
| Budget estimate, 1943 . . . . .                             | 666,000        |
| Change from 1942:   |                |
| Net increase in working funds . . . . .                     | +21,000        |
| Additional for administrative promotions . . . . .          | + 9,073        |
|   | <u>+30,073</u> |





PROJECT STATEMENT

| Projects  | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|-----------|---------------------|---------------------|-------------------------|
| 1. Scabies eradication. . . . .   | \$119,278 | \$127,650           | \$127,650           | - -                     |
| 2. Control over interstate shipment of livestock for the purpose of preventing the spread of communicable disease . . . . . | 280,738   | 279,205             | 291,955             | +\$12,750 (1)           |
| 3. Enforcement of the 28-hour law   | 24,835    | 25,795              | 25,795              | - -                     |
| 4. Determination by inspectors in the field of the existence of diseases. . . . .   | 27,712    | 32,430              | 40,680              | + 8,250 (2)             |
| 5. Inspection and quarantine of import animals . . . . .  | 90,628    | 102,920             | 102,920             | - -                     |
| 6. Supervision over the importation of hides and other animal byproducts, forage, etc. . . . .                              | 53,558    | 56,000              | 56,000              | - -                     |
| 7. Inspection and testing of animals for export . . . . .   | 2,765     | 4,000               | 4,000               | - -                     |
| 8. Net cost of within-grade promotions . . . . .  | - -       | 7,927               | 17,000              | + 9,073                 |
| Unobligated balance . . . . .   | 3,986     | - -                 | - -                 | - -                     |
| Total . . . . .   | 603,500   | 635,927             | 666,000             | +30,073                 |

INCREASES

The increase in working funds of \$21,000 in this item for 1943 consists of:

- (1) An increase of \$12,750 under the project "Control over interstate shipment of livestock for the purpose of preventing the spread of communicable diseases."

Objective: To furnish needed assistance in handling the volume of work brought about by the great shift in the movement of livestock from rail transportation to truck transportation. A prompt and efficient stockyard inspection service is most important at this time when practically all of the countries of the world are at war, and in most of them there has been a complete breakdown of livestock sanitary requirements, thus increasing the danger of the introduction of the infection of animal diseases. Furthermore, the danger of introduction through sabotage methods must be guarded against. The object of this projects is to prevent the spread of livestock diseases by detecting animals at public stockyards affected with communicable diseases and treating the animals, the premises, and the transporting vehicles in such manner as to minimize the danger of spreading disease, and to furnish information to State livestock sanitary officials which aids them in eradicating the disease at point of origin.



The problem and its significance:

The transportation of livestock by motor truck, rather than by railroad, has greatly increased and made more difficult the task of our inspection service in maintaining the free movement of livestock through the market centers. The percentage of increase in livestock deliveries by motor truck at 17 representative markets, namely, Chicago, Cincinnati, Denver, Fort Worth, Indianapolis, Kansas City, Louisville, Milwaukee, National Stock Yards, Oklahoma City, Omaha, Portland, Sioux City, Sioux Falls, South St. Joseph, South St. Paul, and Wichita, is indicated in the following table:

|      | <u>Cattle</u> | <u>Calves</u> | <u>Hogs</u> | <u>Sheep</u> |
|------|---------------|---------------|-------------|--------------|
| 1916 | 1.38          | 4.10          | 1.79        | 1.28         |
| 1920 | 2.22          | 9.49          | 6.95        | 3.43         |
| 1930 | 18.60         | 35.64         | 35.59       | 14.03        |
| 1940 | 66.65         | 70.72         | 74.91       | 35.25        |

The inspectors on this project are fewer in number than 20 years ago when most shipments were made by rail.

Before the advent of the motor truck a large percentage of livestock was received at markets during the night, and was held in a special section of the yards until inspected by Bureau employees early in the morning before the market opened. During the day advance notice was given of the arrival of livestock by rail, making it possible for employees engaged in inspection of incoming deliveries to assist in the patrol inspection in the yards while awaiting the other shipments. The loading out also was accomplished at regular hours, which simplified the inspection and certification of outgoing shipments.

With the increased use of the truck, the orderly arrival and loading out of livestock is almost impossible as no regular schedules can be maintained, deliveries and outgoing shipments being made at all hours of the day and night. This greatly adds to the work of our inspection force by requiring not only an early morning inspection of the livestock delivered during the night, but also makes it necessary to keep employees at the truck unloading docks continuously to inspect each lot as it is delivered during the daylight hours, and at the loading-out docks to inspect and certify the outgoing shipments, thus making it impossible to use the services of these employees on the patrol inspection in the yards.

When the livestock deliveries were made almost exclusively by rail, regular hours were maintained at most of the principal markets. With the new mode of transporting livestock the markets are kept open longer hours and inspection is maintained in the yards from daylight to dark, necessitating a larger inspection force in order to avoid requiring the employees to perform excessively long hours of service.

The problem is to inspect each animal in order that no animal affected with a contagious, infectious, or communicable disease may enter the stockyards proper and spread infection by mingling with the other animals in the yards. Among the principal diseases for which inspections are made are anthrax, scabies of cattle and sheep, tick or splenetic fever, hog cholera, hemorrhagic septicemia (shipping fever), and swine erysipelas. The





inspectors are constantly on the watch for animals showing any symptoms suspicious of foot-and-mouth disease, which in the past has caused serious economic losses to the livestock industry but which has not appeared in this country for many years.

In order that the best interests of the livestock industry may be served, the inspection of the livestock must be thorough and without undue interference with the normal flow of the animals through the yards. Unless the force of inspectors is adequate, there is grave possibility of overlooking an animal in the early stages of disease. To illustrate this point the following example is given.

Foot-and-mouth disease is one of the most contagious and devastating diseases of livestock. It is of foreign origin. Each outbreak in this country has been eradicated by slaughtering all animals affected with or exposed to the disease and destroying the carcasses by incineration or deep burial with quicklime. The drastic measures which are required in the eradication of the disease necessarily cause heavy losses to the farmers and livestock raisers through the slaughter of their animals, and inconvenience and loss of business to other industries by the establishment of quarantines essential in stamping out the disease. The early symptoms of foot-and-mouth disease are oftentimes obscure. With an inadequate force an animal affected with the disease might easily be overlooked, resulting in the spread of this dread disease to a large number of States through the distribution of animals from the yards to different parts of the country.

During the fiscal year 1943 Bureau inspectors at 48 stockyards in 46 cities will inspect approximately 18,750,000 cattle and 22,500,000 sheep. Of these animals approximately 1200 cattle and 325,000 sheep will be dipped under supervision to comply with the regulations of the Department and the various States to which they are destined. The approximate number of swine which will be inspected will be 31,500,000, of which 200,000 will be immunized against hog cholera, under Bureau supervision, for distribution for feeding and breeding purposes.

General plan: Since the inspection of livestock for interstate movement is an essential service in the control of disease, an adequate inspection force must be maintained at public stockyards to prevent the dissemination of livestock diseases by detecting, segregating, and supervising the appropriate treatment or other disposal of animals affected with or exposed to contagious, infectious, or communicable disease, and supervising the cleaning and disinfection of all cars, trucks, and other conveyances used in the transportation of infected animals, and all pens, chutes, and alleys in which such animals are handled.

Our employees will continue to investigate and report apparent violations of the animal quarantine laws.





(2) An increase of \$8,250 under the project "Determination by inspectors in the field of the existence of diseases" for the purpose of eradicating dourine.

Objective: To determine, in cooperation with State livestock sanitary authorities and the U. S. Indian Service, the extent of a recent outbreak of dourine among horses in the Southwest, and to eradicate the disease where it is found to exist. The Second Supplemental National Defense Appropriation Act, 1942, appropriated \$16,500 for expansion of this work in the last 8 months of the fiscal year 1942. The increase of \$8,250 is the amount needed to carry on this work on a 12 months' basis in the fiscal year 1943.

The problem and its significance: After several years of almost complete freedom of the country from dourine, the disease was found to exist in Arizona in July 1940 and in California in March 1941. Systematic testing is being carried on in Nevada but no reactors have been found in the present campaign. Dourine is an insidious disease of horses which is communicated by breeding and animals may harbor the infection for long periods without manifestation of symptoms. Consequently, it may be introduced and remain unrecognized until there has been a considerable spread. When the presence of the disease is disclosed, it is essential to determine its extent and to eradicate it where it exists. In the present national defense program the procurement of horses by the Army is being hampered in the areas involved, and unless the disease is brought under control and eradicated, the outbreak may present a very serious situation. The southwestern region of this country is an important source of horses for the Army and naturally the presence of the disease interferes with their procurement. The Remount Service and Veterinary Corps of the War Department depend upon this Bureau for information on disease conditions and make procurement restrictions accordingly. At the present time the restrictions by that Department are severe in Arizona, the eight southern counties of California, and parts of Nevada.

Eradication work is being conducted in cooperation with the State livestock sanitary officials and the Office of Indian Affairs of the Department of the Interior, but the funds for the fiscal year 1942 for this purpose are entirely inadequate to cope with the present outbreak. Testing of 59,230 horses, mules and burros through November 30, 1941, has disclosed 743 reactors.

General plan: Dourine eradication is carried on under a project which covers the control and eradication of miscellaneous animal diseases in the field. The plan of work for the eradication of dourine under this outbreak does not differ from regular eradication except as to volume of testing. Work is carried on in the field by experienced veterinarians who are assisted by agents. Animals are bled and the blood sera forwarded to the Washington laboratory where bacteriologists test it by the complement-fixation method and report the results to the field. When the reaction is positive for dourine, the horse is destroyed. Indemnities are paid under certain conditions. The infection is widely scattered and necessarily involves travel over considerable distances.

#### WORK UNDER THIS APPROPRIATION

Objective: The eradication of scabies and dourine in cooperation with the various States; the investigation of reported outbreaks of diseases among livestock to determine if they are communicable and, if so, assisting local



authorities in their control and eradication; the application of tests in the field and in the laboratory for diagnostic purposes; the control over interstate movements of livestock as a means of preventing the dissemination of infections, which includes inspection at the principal market centers; the administration of the 28-hour law to prevent cruelty to animals in interstate transportation; the inspection and testing of livestock intended for export, to determine their freedom from disease, and the inspection of fittings and accommodations on vessels on which they are to be transported; the inspection and quarantine of livestock offered for importation; control over import animal byproducts, hay and straw, etc., to prevent the introduction or dissemination of communicable livestock diseases; and the administration, jointly with the Treasury Department, of Section 306 of the Tariff Act of 1930, prohibiting the importation of domestic ruminants or swine, or chilled or frozen fresh meats derived therefrom, from countries where foot-and-mouth disease or rinderpest exists.

The problem and its significance: Scabies and the other diseases covered by this item are readily disseminated and complete eradication is important for the protection of the livestock industry.

The discovery at public stockyards of shipments of livestock affected with communicable diseases is necessary in order to prevent the spread of disease and to trace infection back to its source. It is also necessary to insure the safe and humane handling of livestock by railroads while in the course of interstate transportation.

It is important to safeguard the livestock industry against serious losses by preventing the introduction of destructive communicable diseases from other countries through the importation of livestock or through the medium of infected or contaminated animal byproducts, hay, straw, etc.

In order to protect and promote foreign trade it is necessary to prevent the exportation of any animals that have been exposed to any communicable disease and to provide for their safe transportation.

General plan: Disease eradication work is carried on in cooperation with the States involved. In the import work under this item inspectors are assigned to stations along the international boundaries and on the seacoast to inspect animals, and when necessary to place them in quarantine, and to inspect animal byproducts, hay, straw, etc. In export work, inspection and testing of animals is made at ports and in the various districts of origin throughout the country.

Examples of progress and current program:

1. Scabies eradication: During the fiscal year 1941, inspections and supervised dippings of sheep in the field totaled 14,073,591 and 1,497,149, respectively. Infection was found in 1,406 flocks, totaling 175,224 sheep. Most of these centers of infection are scattered throughout the Midwestern States, where methods of marketing and distributing livestock greatly increase the difficulties of eradication.. Cooperative campaigns are in progress in eight of those States. A few cases of reinfestation in the range areas of the West, where it appears the disease has been completely eradicated, were promptly dealt with.





A total of 1,769,187 inspections of cattle were made in the field and 90,088 dippings were supervised. The number of cattle in infected herds was 14,945, less than half the number reported the previous year. The reappearance of the disease in Texas, where it has been eradicated, shows the need for continual watchfulness so long as any infection remains in the country.

Control over interstate shipment of livestock for the purpose of preventing the spread of communicable disease: The work in connection with the inspection of livestock moving interstate does not vary greatly from year to year. It is most important that no affected animal be permitted to pass through a public stockyard and establish a new center of infection. Thus it is imperative that all animals in yards under Bureau supervision be thoroughly inspected.

The progressive increase in the transportation of livestock by motor truck rather than by railroad continued through the past fiscal year. In 1941 there were 46 cities where stations were maintained for public stockyard inspection. A total of 70,509,870 animals were inspected including 18,798,025 cattle, 21,282,586 sheep and 30,429,259 swine. A total of 523,591 animals were dipped or immunized including 1,780 cattle, 317,943 sheep, and 203,868 swine. Infectious cars received numbered 444 and cars cleaned and disinfected 4,370. These figures do not fairly indicate the amount of work involved for the reason that more work is required in the inspection of truck shipments than in the inspection of shipments received by rail.

Enforcement of the 28-hour law: The volume of work under the enforcement of the 28-hour law is controlled by the number of alleged violations brought to the attention of the Bureau - shown for recent years in the following table:

|                                   | <u>1939</u> | <u>1940</u> | <u>1941</u> | <u>Estimated</u><br><u>1942</u> | <u>Estimated</u><br><u>1943</u> |
|-----------------------------------|-------------|-------------|-------------|---------------------------------|---------------------------------|
| Enforcement of the 28-hour law:   |             |             |             |                                 |                                 |
| Violations reported to Bureau . . | 186         | 201         | 244         | 225                             | 225                             |
| Violations referred to Solicitor. |             |             |             |                                 |                                 |
| of Department . . . . .           | 125         | 100         | 182         | 125                             | 125                             |

Determination by inspectors in the field of the existence of disease: Activities under this project centered chiefly on determining the extent of spread of dourine of horses in Arizona and southern California where that disease was found to exist. Except for a circumscribed area in northern Nevada the country has been apparently free from dourine for several years. Measures were taken at once to trace all possibly exposed horses and test these and large numbers of others in areas surrounding the infected district.



The work consists of drawing blood samples from all horses in the areas involved and forwarding the sera to the laboratory in Washington for complement-fixation test. The work thus far accomplished indicates that existence of dourine is limited largely to two counties in southern Arizona and one county in California. The region involved in Arizona includes several Indian reservations where the work is carried on in cooperation with the Office of Indian Affairs. Topographical and climatic conditions and the fact that a great many of the horses involved are wild render the eradication work exceedingly difficult, especially on the reservations where the greatest amount of infection has been found.

No serious outbreaks of anthrax or other diseases handled under this project occurred during the year. However, assistance by Bureau employees in administering preventive treatment to Indian-owned cattle on reservations where anthrax infection is known to exist was continued.

5. Inspection and quarantine of import animals: In the fiscal year 1941, inspections at the various ports totaled 815,329 which was an increase of nearly 20 percent over the previous year. Of these, 34,054 animals were refused entry on account of disease and 35 were detained in quarantine for further observation and testing to determine their freedom from infection. The number and kind of animals inspected for importation were as follows:

| Ports of entry        | Horses  |        |        |       |           | Other |         | Total   |
|-----------------------|---------|--------|--------|-------|-----------|-------|---------|---------|
|                       | Cattle  | Swine  | Sheep  | Goats | and mules | Asses | Animals |         |
| Ocean Ports .....     | 855     | 22     | 6      | -     | 554       | -     | 16      | 1,453   |
| Canadian border ports | 220,897 | 22,181 | 3,380  | 70    | 4,273     | -     | 9       | 250,810 |
| Mexican border ports  | 542,445 | 7,061  | 7,847  | 32    | 5,594     | 28    | 59      | 563,066 |
| Total .....           | 764,197 | 29,264 | 11,233 | 102   | 10,421    | 28    | 84      | 815,329 |

6. Supervision over the importation of hides and other animal byproducts, forage, etc.: Supervision was exercised over the entry and the transportation to and handling at destination establishments of over 4,000,000 hides and skins, as well as other animal byproducts imported from countries where foot-and-mouth disease or rinderpest is known to exist. A total of 1,624 railway cars and large numbers of trucks and ship compartments used in the transportation of restricted import products were disinfected, as were premises involved in the handling of such products.
7. Inspection and testing of animals for export: During the past fiscal year 9,548 animals were inspected prior to their exportation in compliance with the regulations of the Department and in order to meet the requirements of receiving countries. These included 4,835 cattle, 1,012 sheep, 722 swine, 2,963 equines and 16 other animals.



(h) MEAT INSPECTION

|   |                  |
|---|------------------|
| Appropriation Act, 1942, plus \$80,253 supplemental<br>for within grade promotions .....  | \$5,510,073      |
| Second Supplemental National Defense Appropriation<br>Act, 1942 (for expanded activities in meat<br>inspection due to the war situation ..... | <u>375,000</u>   |
| Total available, 1942 .....   | 5,885,073        |
| Budget estimate, 1943 .....   | <u>6,147,000</u> |
| Change from 1942:   |                  |
| Net increase in working funds .....   | +185,180         |
| Additional for administrative promotions .....  | + 76,747         |
| Net increase .....  | <u>+261,927</u>  |

PROJECT STATEMENT

| Projects  | 1941             | 1942<br>(estimated) | 1943<br>(estimated) | Increase<br>or decrease |
|---|------------------|---------------------|---------------------|-------------------------|
| 1. Meat inspection operations at<br>packing plants under the Federal<br>meat inspection service .....                                     | \$5,232,861      | \$5,659,125         | \$5,844,305         | (1)<br>+\$185,180       |
| 2. Determination of adulterations and<br>other objectionable conditions in<br>meat and meat food products by<br>laboratory analysis ..... | 86,180           | 88,600              | 88,600              | - -                     |
| 3. Inspection of imported meats and<br>meat food products .....   | 28,489           | 29,775              | 29,775              | - -                     |
| 4. Chemical, pathological and zoologi-<br>cal investigations relating to<br>meat inspection .....   | 25,685           | 27,320              | 27,320              | - -                     |
| 5. Net cost of within-grade promotions<br>Transferred to "Salaries and Expenses,<br>Office of the Solicitor" .....                        | - -              | 80,253              | 157,000             | + 76,747                |
| Unobligated balance .....   | 3,161            | - -                 | - -                 | - -                     |
|   | 56,624           | - -                 | - -                 | - -                     |
| <b>Total .....</b>  | <b>5,433,000</b> | <b>5,885,073</b>    | <b>6,147,000</b>    | <b>+ 261,927</b>        |

INCREASE

(1) An increase of \$185,180 under the project "Meat inspection operations at pack-  
ing plants under the Federal Meat Inspection Service."

Objective: To meet increased demands upon the Federal Meat Inspection Service as a  
result of the war situation. The Second Supplemental National Defense Appropria-  
tion Act, 1942, appropriated \$375,000 for expansion of this work in the last 8  
months of the fiscal year 1942. The increase of \$185,180 is the amount needed to  
carry on this work on a 12 months' basis in the fiscal year 1943.





problem and significance: Federal meat inspection in the war program does not differ materially from that of the present activity, except as to volume.

Services of employees in meat inspection are used as required in inspection and examination of meat and meat food products to determine their compliance with specifications when purchased by other Government agencies, including the Navy, Marine Corps, Federal Surplus Commodities Corporation, and a number of others. Although the cost of actual inspections for such agencies to determine compliance with specifications is generally reimbursed, purchases under the war program entail a large increase in regular meat inspection due largely to

- (a) The increase in the number of animals slaughtered. It is anticipated that hog slaughtering during the coming months will exceed the previous year by at least 8 to 10 percent.
- (b) The increase in the volume of processing and the increase in the number of processes of a large part of the output to meet war needs. For example, hams, shoulders, and bacon are usually cured and smoked for delivery to civilian consumers, but in addition to these processes such product is usually canned for the agencies concerned, and meat to be exported, especially that intended for relief purposes and military use where the product will be subjected to adverse conditions, must be specially packed, much of it in preservatives, and specially certified to.

The increased activity in the packing industry is indicated by the following tabulations comparing the volume inspected during May and June 1940 with the corresponding period in 1941. It is anticipated that the present year will see an even greater increase.

| <u>Product Canned</u> |               | <u>Product Cured &amp; Smoked</u> |               | <u>Certified for Export</u> |               |
|-----------------------|---------------|-----------------------------------|---------------|-----------------------------|---------------|
| <u>1940</u>           | <u>1941</u>   | <u>1940</u>                       | <u>1941</u>   | <u>1940</u>                 | <u>1941</u>   |
| <u>Pounds</u>         | <u>Pounds</u> | <u>Pounds</u>                     | <u>Pounds</u> | <u>Pounds</u>               | <u>Pounds</u> |
| May 59,734,638        | 87,539,078    | 3,081,014                         | 16,055,933    | 319,158                     | 5,716,525     |
| June 53,421,580       | 83,213,553    | 3,505,643                         | 35,367,976    | 261,813                     | 11,096,938    |

| <u>Inspections for other Government agencies</u> |               |
|--|---------------|
|  | <u>1941</u>   |
|  | <u>Pounds</u> |
| May  | 28,995,624    |
| June   | 19,015,916    |

Plan of Work: Present Federal meat inspection activities will be expanded. It is expected that the principal increase in work will be in connection with the slaughtering of hogs and the processing of their meat and products, and since most of the hog slaughtering departments of inspected establishments throughout the country are in normal times taxed to their limit during the fall and winter seasons, the increase will be represented by additional daily shifts rather than by an increase in hourly rates of slaughter. The additional work is general throughout those States which produce large numbers of livestock and in which the larger market centers are located.



## WORK UNDER THIS APPROPRIATION

Objective: Federal meat inspection has for its purpose the prevention, through the enforcement of the Meat Inspection Acts, of the use in interstate or foreign commerce of meat and meat food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food.

The problem and its significance: For efficient results, each animal must be inspected before slaughter and each carcass, including organs and parts thereof, must be carefully examined at the time of slaughter. Approximately 7.78 percent of all animals slaughtered are affected with some degree of abnormalcy, which is seldom obvious except on close scrutiny. Accordingly, the constant presence of inspectors and their careful examination in every detail are required during slaughtering operations.

Meat and meat food products are perishable. Accordingly, reinspections requiring the regular presence and careful observation of inspectors are necessary throughout the stages of processing, preparing, and packing of such products. The ingredients, spices and other substances added to meat and to meat products must be carefully scrutinized as to their wholesomeness and proper use. Condemned animals, carcasses and parts, and meat food products must be destroyed under strict supervision and the passed articles must be truthfully and informatively labeled. Observations and investigations of the activities of common carriers of meat and meat products are necessary from time to time to see that only product of appropriate eligibility is shipped interstate.

Under the Import Meat Act and the Meat Inspection Acts, meat and meat food product from countries having a national system of inspection which, as determined by the Secretary of Agriculture, is the substantial equivalent of the system maintained in the United States may be offered for entry. However, each consignment is carefully inspected to see that only meat and meat food products are accepted for importation which have been properly certified from abroad, are sound, healthful, wholesome, and otherwise fit for food, and are truthfully labeled.

A large variety of specimens are submitted to the various Bureau laboratories each year for chemical, pathological and zoological investigations.

General plan: The principal meat inspection operations at meat packing establishments include ante-mortem and post-mortem inspections of cattle, sheep, swine, goats, and, to a limited degree, of horses; reinspection of meat and meat products during processing, preparation, and packing; and the supervision of marking and branding of products to insure truthful labeling. In addition, the service includes inspection under the Import Meat Act and Meat Inspection Acts of imported meat and meat food products; laboratory examinations as assurance against adulterations or similarly objectionable conditions, and determination of the character and importance of abnormal conditions in food animals encountered in ante-mortem and post-mortem inspections and subsequent inspections of meat and meat food products derived therefrom.





Examples of progress and current program:

1. Meat inspection operations at packing plants under the Federal Meat Inspection Service: Meat inspection is a regulatory service of long standing and under normal conditions is fairly constant as to volume and cost. However, it is reacting to the war activity demands for increased supplies of meats and meat food products. Constantly increasing demands are being made for expanded and extended Federal meat inspection. The principal increase in work at this time is being brought about by increased hog production and by the enormous increase in chopping, curing, smoking, canning, and other processing of meat food products.

Animals Inspected Ante-mortem and Post-mortem

| <u>Fiscal year</u> | <u>Cattle</u> | <u>Calves</u> | <u>Sheep &amp; lambs</u> | <u>Goats</u> | <u>Swine</u> | <u>Horses</u> | <u>Total</u> |
|--------------------|---------------|---------------|--------------------------|--------------|--------------|---------------|--------------|
| 1940               | 9,560,329     | 5,223,172     | 17,262,684               | 3,061        | 46,693,925   | 28,178        | 78,751,349   |
| 1941               | 10,126,861    | 5,393,566     | 17,811,612               | 5,452        | 48,710,059   | 14,641        | 82,062,191   |

Meats and Meat Food Products Prepared and Processed Under Supervision

1940 - 9,690,165,254  
1941 - 10,514,837,866

These figures represent "inspection pounds" as some of the products may have been inspected and recorded more than once due to having been subjected to more than one processing treatment, such as curing first and then canning.

Inspection for other Government Agencies

1940 - 145,235,616  
1941 - 425,565,970

Inspection of meat products to determine their compliance with specifications is generally reimbursed. However, such specifications usually require certain processing or treatment in addition to that necessary to prepare the product for the trade, and this increases, accordingly, meat inspection work for which no reimbursement can be claimed.

2. Determination of Adulterations and Other Objectionable Conditions in Meat and Meat Food Products by Laboratory Analysis:

Number of samples examined: 1940 - 33,894  
1941 - 28,972

The necessity of relocating one of the field laboratories (Chicago) during the year disrupted the work, and is the principal reason for the reduction in the volume of work accomplished during the fiscal year ended June 30, 1941. Reduced importations were another factor.



3. Inspection of Imported Meats and Meat Food Products:

1940 - 116,436,662  
1941 - 106,954,815

4. Chemical, Pathological, and Zoological Investigations Relating to Meat

Inspection: In an effort to obtain factual information regarding changes in commercial packing-house practices and other problems in the processing of meat products in connection with the administration of the Meat Inspection Act, attention in recent years has been given to the nutritive properties of certain animal and vegetable fats. It has been found that lard is superior in nutritive properties to many other shortenings, selling at a higher price. During the past year, attention has been given to oleo stock and mutton tallow in comparison with various vegetable oils and butter-fat. Such vegetable oils as soybean and corn have shown high nutritive values as measured in digestibility and in growth-promoting value. The lower values obtained on oleo stock and mutton tallow have prompted an examination of the reasons for these results with a view to their possible changes and improvements in mode of use.

Laboratory studies were continued on specimens of joints from swine forwarded from several meat packing centers. The swine erysipelas organism was found to be the causative agent of the arthritis in about 76 percent of the 300 specimens examined. Affected joints were found in three additional States, Kansas, Oklahoma, and Missouri.

One-half pound samples from 579 meat-food products containing pork muscle tissue, prepared in Federally-inspected establishments to be eaten customarily without cooking, were examined for the presence of trichinae with the following results: No live trichinae were found in any of the samples and dead trichinae were found in only 4 samples; the maximum number of dead trichinae in any one sample was three.

Investigations on the occurrence of infective trichinae in swine carcasses showed that, in addition to parasitizing striated muscle tissue, these parasites occur occasionally in such unusual locations as the heart muscle, lungs, liver, stomach and intestinal walls, pancreas, testis, brain and aorta. These findings have a practical bearing on meat inspection, especially as regards processing for the destruction of the vitality of these parasites.

Investigations were made on the injuries to hams produced by cheese mites and it was found that the invading organisms burrowed into the meat deeply and reached the bone. Preliminary observations indicate that one method of circumventing the injuries of these organisms in the case of Smithfield hams is to apply a heavier cure or to smoke these products at temperatures higher than those customarily employed.



(i) VIRUS-SERUM-TOXIN ACT

|  |                |
|--|----------------|
| Appropriation Act, 1942, plus \$2,215 Supplemental for within-grade promotions ..... | \$220,927      |
| Budget estimate, 1943 .....  | <u>223,718</u> |
| Change from 1942:  |                |
| Net reduction in working funds .....   | - 212          |
| Additional for administrative promotions .....                                       | + 3,003        |
| Net increase .....   | <u>+ 2,791</u> |

PROJECT STATEMENT

| Projects  | 1941      | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|---|-----------|---------------------|---------------------|-------------------------|
| 1. Control of manufacture, importation and shipment of viruses, serums, toxins, etc. .... | \$214,791 | \$218,712           | \$218,500           | - \$212 (1)             |
| 2. Net cost of within-grade promotions .....  | - -       | 2,215               | 5,218               | + 3,003                 |
| Unobligated balance .....   | 3,921     | - -                 | - -                 | - -                     |
| Total .....   | 218,712   | 220,927             | 223,718             | + 2,791                 |

DECREASE

(1) The reduction of \$212 for administration of the Virus-Serum-Toxin Act will be met by a reduction in supplies and materials purchased.

WORK UNDER THIS APPROPRIATION

Objective: To insure that all veterinary biologics produced by licensees are, in fact, not worthless, contaminated, dangerous, or harmful, and to prevent, insofar as possible, the interstate movement or importation of any veterinary biologic product, organism, or vector that is worthless, contaminated, dangerous, or harmful.

The problem and its significance: Biological products that are not properly prepared and tested may be worthless, contaminated, dangerous, or harmful to animals treated therewith. They may either fail to prevent or control an outbreak of disease and may even be the means of spreading disease. A license issued by the Secretary should carry with it reasonable assurance to the livestock producer that the products when properly used will afford protection and not be harmful to his animals. A biologic that is contaminated or otherwise improperly prepared, not only may endanger the herd that is treated, but may prove disastrous to other herds in the community through failure of the product in some respect.





General plan: This entails the detailing of sufficient inspectors to the establishments producing anti-hog-cholera serum and hog-cholera virus so that all operations connected with the production and testing of these products are carried out under direct supervision. Inspection of plants producing biological products other than anti-hog-cholera serum and hog-cholera virus is made at infrequent intervals or upon instructions for special reasons.

Examples of progress and current program: The increase in estimated production for 1942 and 1943, as reflected in this table, is occasioned by anticipated increased demands to safeguard the livestock population during the war emergency. Experience has demonstrated that any increase in value of and demand for livestock or their products also increases the demand for biologics for use in combating animal diseases.

|   | <u>Actual</u><br><u>1941</u> | <u>Estimated</u><br><u>1942 and 1943</u> |
|---|------------------------------|--|
| (a) Establishments producing anti-hog-cholera serum and hog-cholera virus ..... | 42                           | 42                                       |
| Production:   |                              |  |
| Serum (cc) .....  | 1,137,057,000                | 1,250,762,000                            |
| Virus (cc)  |                              |  |
| Simultaneous .....  | 78,666,000                   | 86,532,000                               |
| Hyperimmunizing .....   | 218,413,000                  | 240,254,000                              |
| Inoculating .....   | 818,000                      | 899,000                                  |
| Animal inspections .....  | 3,194,000                    | 3,503,000                                |
| Tests supervised .....  | 13,000                       | 14,000                                   |
| (b) Establishments producing other biologics .....                              | 41                           | 43                                       |
| Production:   |                              |  |
| Doses .....   | 133,537,000                  | 138,070,000                              |
| Units .....   | 601,533,000                  | 610,500,000                              |
| (c) Products destroyed (cc) .....   | 16,059,000                   | 15,000,000                               |
| Products destroyed (doses) .....  | 2,795,000                    | 2,800,000                                |
| (d) Export certificates issued .....  | 533                          | 540                                      |



(j) MARKETING AGREEMENTS WITH  
RESPECT TO HOG-CHOLERA VIRUS AND SERUM

|                              |               |     |
|------------------------------|---------------|-----|
| Appropriation Act, 1942..... | \$30,000      | (a) |
| Budget estimate, 1943.....   | <u>30,708</u> | (a) |
| Increase.....                | <u>+ 708</u>  |     |

(a) Transferred and payable from the unobligated balance of the appropriation provided by section 12(a), Title I, of the Agricultural Adjustment Act of May 12, 1933.

PROJECT STATEMENT

| Projects   | 1941     | 1942<br>(estimated) | 1943<br>(estimated) | Increase or<br>decrease |
|--|----------|---------------------|---------------------|-------------------------|
| 1. Marketing agreements with respect to<br>hog cholera virus and serum ..... | \$27,717 | \$30,000            | \$30,000            | - -                     |
| 2. Net cost of within-grade promotions                                       | - -      | - -                 | 708                 | +\$708                  |
| Unobligated balance .....  | 2,283    | - -                 | - -                 | - -                     |
| Total .....  | 30,000   | 30,000              | 30,708              | + 708                   |

WORK UNDER THIS APPROPRIATION

Objective: To insure that the control agency and handlers of anti-hog-cholera virus observe the provisions of the marketing agreement and order.

The problem and its significance: The Serum and Virus Law of August 24, 1935, and Marketing Agreement of December 7, 1936, stress the economic importance of producers and other handlers maintaining an adequate supply of serum and virus at all times and aims to prevent undue and excessive fluctuations of prices, unfair methods of competition, and unfair trade practices.

General plan: The work relates mainly to reviewing acts of the control agency, attendance at meetings, and the assembling of economic data relating to the production, sales, and prices of anti-hog-cholera serum and hog-cholera virus. Proposed amendments to the agreement and order have entailed conferences and public hearing for the purpose of receiving testimony and affording all interested parties the opportunity to file briefs. The marketing agreement is enforced by a control agency selected by the Secretary and handlers, whose acts are subject to review by the Secretary and his representatives.

Examples of progress and current program: At the close of the fiscal year 1941, there were 188 handlers of anti-hog-cholera serum and virus operating under the marketing agreement, an increase of 12 over the previous fiscal year.





(k) ERADICATION OF FOOT-AND-MOUTH  
AND OTHER CONTAGIOUS DISEASES OF ANIMALS

Prior year balance available in 1942..... \$1,318,331  
Budget estimate, 1943 (reappropriation  
of portion of 1942 available funds)..... 305,000  
Decrease in available funds.....- 1,013,331 (1)

1) The amount of \$1,013,331 by which this item is being decreased in 1943 will be returned to the surplus fund of the Treasury.

CHANGE IN LANGUAGE

he estimates include a proposed change in the language of this item as follows new language underscored).

In case of an emergency arising out of the existence of foot-and-mouth disease, rinderpest, contagious pleuropneumonia, or other contagious or infectious disease of animals, which, in the opinion of the Secretary of Agriculture, threatens the livestock industry of the country, he may expend in the city of Washington or elsewhere any unexpended balances of appropriations heretofore made for this purpose, not to exceed \$305,000, in the arrest and eradication of any such disease, including the payment of claims growing out of past and future purchases and destruction, in cooperation with the States, of animals affected by or exposed to, or of materials contaminated by or exposed to, any such disease, wherever found and irrespective of ownership, under like or substantially similar circumstances, when such owner has complied with all lawful quarantine regulations: Provided, That, except as hereinafter provided, all of such unexpended balances of appropriations in excess of said \$305,000 shall be covered into the surplus fund of the Treasury: Provided further, That the payment for animals hereafter purchased  
\*\*\*\*\*

he change in language provides for a decrease in funds to be reappropriated, and for the return to surplus of that portion of the funds available in 1942 not reappropriated in 1943.

WORK UNDER THIS APPROPRIATION

his item continues the availability of \$305,000 of the unexpended balance (\$1,318,331) of the appropriation of \$3,500,000 made in 1924, such unobligated balance to be available for use in case of an emergency arising out of an outbreak of foot-and-mouth or other contagious diseases of animals. It provides also that \$5,000 of this balance may, if needed, be used for the control of European fowl pest and similar diseases in poultry. No expenditures are contemplated unless an emergency arises, but it is essential that funds be available at all times to insure immediate protection of the American livestock industry should outbreaks occur. This is particularly important under present world conditions when most countries are at war. In many of them there has been a complete breakdown of livestock sanitary requirements. In connection with the reduction in funds available as proposed in the Budget, the Budget Bureau has indicated that in the event of an outbreak immediate action could be taken with the \$300,000 and necessary additional sums could be provided, if Congress were not in session, by allocations from emergency funds available to the President.



## SUPPLEMENTAL FUNDS

(Complete Bureau Statement)

Direct Allotments

| Projects  | Allotments<br>1941 | Estimated<br>Allotments,<br>1942 | Estimated<br>Allotments,<br>1943 |
|---|--------------------|----------------------------------|----------------------------------|
| <u>Special Research Fund, Department of<br/>Agriculture:</u>  |                    |                                  |                                  |
| Special research projects .....   | \$95,960           | \$45,260                         | \$37,260                         |
| Special research laboratories in<br>major agricultural regions .....  | 263,500            | 267,000                          | 267,000                          |
| Net cost of within-grade promotions...  | - -                | 1,702                            | - -                              |
| Total, Special Research Fund .....  | 359,460            | 313,962                          | 304,260                          |
| <u>Agricultural Adjustment Administration<br/>(Salaries and Expenses):</u> Marketing<br>agreements, hog-cholera virus and<br>serum..... | 30,000             | 30,000                           | 30,708                           |
| Total, supplemental funds.....  | 389,460            | 343,962                          | 334,968                          |

## PASSENGER-CARRYING VEHICLES

The authorization for the purchase of passenger-carrying vehicles for the Bureau of Animal Industry contemplates a decrease in the number of cars estimated to be purchased from 217 in the fiscal year 1942 to 189 in the fiscal 1943. The 189 cars requested for the fiscal year 1943 will permit the Bureau to replace 189 old vehicles at an average cost of \$525 each after exchange allowances are deducted, and exclusive of freight estimated at \$50 per car. No new vehicles other than replacements are estimated for in 1943. This is about 24 percent of the Bureau's cars. Of the 789 Bureau passenger-carrying vehicles now in operation, nearly 95 percent are used in inspectional work on farms in rural districts, and many of them have mileage of 18,000 and upward a year. It has been the Bureau's experience that cars assigned to rural inspectional work receive such rough use on secondary and county roads and lanes leading to farms that they must be replaced on an average of about every three years, in order to keep mileage charges at the lowest possible point and to prevent frequent interruptions to the work which occur due to breakdowns when badly worn equipment is kept in service. All the cars to be replaced have reached the point where they can no longer be operated economically, the average mileage being over 40,000 and in individual cases running as high as 60,000.



The Bureau is unable to carry on economically and efficiently its varied activities in the field by the use of public transportation. Therefore, when government-owned cars are not available, it is necessary to authorize employees to operate their privately-owned cars on a mileage basis. The Bureau has found that the use of government-owned passenger-carrying vehicles for transporting its employees is considerably less expensive than when reimbursement is made to employees for the use of their own cars. The Bureau has found that government-owned passenger-carrying vehicles can be operated in almost every section of the country for approximately 3 cents a mile. This estimate is based on purchase price and operation charges, less trade-in allowance.



